



MDB*utures*
Collaborative Research Network



Education, Place and Sustainability:

**A Literature Review and Overview of Curriculum and
Policy in the States and Territory of the Murray-
Darling Basin**

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Introduction

This document has been developed as part of the *MDB futures* research project 'Towards Place Based Education in the Murray Darling Basin.' The project explores the ways in which sustainability is understood in Murray Darling Basin (MDB) communities (including Indigenous, rural, small towns and regional centres); how it is presented in Murray Darling Basin Authority (MDBA) education programs, and the ways it is currently taught in schools in the MDB region. Upon identifying the various perspectives on sustainability the project will examine how MDBA education programs and the Australian Curriculum, including its cross curriculum priorities of Sustainability and Indigenous perspectives, can best be adapted through place-based education to incorporate local knowledge in education.

This literature review provides a background for the research project; specifically it provides an overview of two important concepts for this project: place and sustainability. These are then followed with an analysis of the use of sustainability in State, Territory and National curriculum and education policy. Overall this literature review outlines that both place and sustainability are multifaceted and contested terms with each used in multiple ways throughout the literature.

It is not our aim here to definitively conclude what is meant by place or sustainability: that is work for the project in other publications and in relation to the work being undertaken. That each is defined in relation to the work being undertaken is perhaps the key conclusion here. Furthermore as the aim of the project is to uncover community understandings of sustainability it would be presumptuous for us to make definitive conclusions. Indeed as the project hypothesis the definitions of these terms tend to emanate from power and are not defined in relation to community, and in particular rural community, knowledges and understandings.

One thing that became clear undertaking this review is that there is little explicit theorisation of the connection between place and sustainability. Undoubtedly it exists at some level in the thinking of those writing on the topic, it is just that we could locate little explicit theorisation. Instead it was common to see work relating to 'place' using arguments

that 'place' helps achieve sustainability, and equally for work on 'sustainability' in education referencing the importance of place pedagogy in achieving 'sustainability'. As a result this document is divided into explicit sections on place and sustainability. Each makes reference to the other but as per the literature does not attempt to account for the connection between each. Adding to that connection will be part of the subsequent work of this project.

Overview

This document has the following three sections:

- Section One: A literature review on place and education
- Section Two: A literature review on sustainability and education
- Section Three: An overview of sustainability in the curriculum and policies from the four states and one territory that the Murray-Darling Basin is part of.

The literature review on place-based education addresses the following questions:

- What is Place-Based / Place-Conscious education?
- What are the characteristics of Place-Based / Place-Conscious education projects?
- What is known to work – not work?
- Indigenous perspectives on place (and school knowledge)
- What are effective means of Schools-Community partnerships & collaboration?

The literature review on sustainability addresses the following questions:

- What is sustainability?
- What is education for sustainability?
- Triple bottom line
- Indigenous perspectives
- Genealogy of Sustainability in:
 - o Policy
 - o Social ecology
 - o Ecology
 - o Social sciences
 - o Education
- What is known to work or not work?

The Overview of sustainability in the curriculum and policy contains the following:

- how sustainability is defined in each curriculum document
- how sustainability appears in each curriculum document
- how sustainability appears as a cross curricular priority in the National curriculum
- how sustainability is defined in policy documents
- how sustainability is used in policy documents

Section One: Place and Education - A Literature Review

Introduction

Place-based education spans over many years, is grounded on traditional environmental education (Smith, 2007; Sobel, 2004) and the literature pertaining to this field of study highlights that place-based education is both a response and challenge for education systems. Challenges faced by The Australian Curriculum involve responding effectively to issues connected with globalization and rapidly changing technological advances alongside dealing with the complexities of environmental, social and economic burdens (ACARA, 2013). On the one hand education in the school system has seen the rise in the current 'one-size fits all' notion of curriculum and pedagogy that 'teaches to the test' (Jennings, Swidler & Koliba, 2005), driven by factors such as economic productivity, the push for measurable outcomes and formal accountability (Dulfer, Polesel & Rice, 2012; Lingard, 2010; McInerney, Smyth & Down, 2011; Pinar, 2012). On the other, there is evidence of growing interest in place-based education as part of a broader movement responding to, what McInerney et al. (2011) recognize as globalization, serious environmental issues, capitalism and economic exploitation impacting on local communities.

Preliminary review of the literature highlights the various fields of study within which place-based education can be located, to include environmental studies (Ardoin, 2006; Powers, 2004; Smith, 2007); outdoor education (Brown, 2008; Wattchow & Brown, 2010); social justice (Lescure & Yaman, 2014); sustainability education (Green, 2012); ecosustainability (Duhn, 2011; Glasson, Frykholm, Mhango, & Phiri, 2006) and science education (Buxton, 2010; Semken & Freeman, 2008). While Powers (2004) perceives sustainable education as well as community-based learning, service learning and project-based learning as "similar terms" to place-based education and to be used interchangeably (p.17), McInerney, Smyth & Down (2011) and Gruenewald (2003a) locate 'features' of place-based education in environmental studies and ecological education, as well as in local or natural history courses, work-experience or work-related programs. Further review surfaces 'place' literature (Green 2012; Kudryavtsev, Stedman & Krasny, 2012; Nespor, 2008; Somerville, 2010) and interweave with both place-conscious education (Budge, 2010; Greenwood, 2013; Roberts, 2013) and place-based education (Gruenewald, 2003b; McInerney et al,

2011; Stevenson, 2008). Gruenewald (2003b) notes “the point of becoming more conscious of places in education is to extend our notions of pedagogy and accountability outward towards places ... because places teach us ... places make us... place matters” (p.620).

What is evident from the work of these researchers, and those that inform their perspectives, is the growing attention, interest and critiques of place-based education. Some researchers claim place-based education “lacks a specific theoretical tradition” (Gruenewald 2003a, p.3), that which McInerney et al. (2011) refer to as “often under-theorised” (p. 4). Gruenewald (2003a) suggests this to be because of the wider application of place-based education to various fields of study, contexts, approaches and processes already highlighted in an earlier section. Place-based education is considered to not adequately make connections between ‘the global and local’, these connections seen to be essential if viewing place-based education as a response to current economic, social and ecological concerns. This argument and a noted lack of critical perspective in place-based education is shared by numerous researchers (Cormack, Green & Reid, 2006; Gruenewald, 2003a; McInerney et al., 2011 and Nespor, 2008). Mannion and Adey (2011) highlight the binaries that exist in the form of “modern versus traditional knowledge, globalized versus local or indigenous cultures” (p.41) and which Nespor (2008) believes not only “obscures the critical questions of how places are constituted and connected” (p. 481) but leads to further questions about the authenticity of culturally responsive dialogue. Nespor (2008) also notes the differing conceptual notions of ‘place’ and ‘community’ that exist yet how the terms are also used synonymously, used “uncritically and without attention to its conceptual complexities”(p. 478).

Rather than forcing us to carefully distinguish among different historical, geographical, cultural, political, economic and other dimensions of place construction, or to look at issues of strategy, power, cooperation and exploitation in their uses, the connotations of “community “ make it possible simply to orient PBE theoretical discourse around an idealized image of “place” as a stable, bounded, self-sufficient communal realm. (Nespor, 2008, p. 479)

The implication of these findings is blurred notions of overlapping terms and concepts. Distinctions between place, place-based, place-conscious education, and in the context of various fields of study are not made clear in the literature. Complexities have been

highlighted through subtle and not so subtle differences in defining place-based education. That said, in light of all that has been introduced in the previous paragraph of complexities and issues generated by a lack of clear definition for place-based education, certain features are evident.

Place-based education does not look like conventional education. Students don't sit quietly at their desks listening to teachers or completing worksheets. They instead work and converse in teams and frequently leave the school itself, to engage in activities in the field or community. And teachers do not concentrate on drilling students for high stakes test, relying instead on forms of understanding and knowledge that arise more organically through real-life investigations and problem-solving. (Smith, 2007, p. 204)

Place-based/place-conscious education is characterized as an interconnectedness of student, teacher, school, community and local resources. It is grounded in “resources, issues and values of the local community” designed to encourage school and community partnerships, which incorporate environmental, ecological, cultural, social, economic and/or political perspectives¹ in a formal and informal way (Powers, 2004, p. 17). It relies on interactions and actions which accept ‘place’ as an active process that can adapt and refashion itself rather than be a static representativeness (Massey 1994, as cited in Green, 2012, p. 329). Problem-solving processes are involved (Longo, 2007, p. 10), which draw attention to a real-world involvement utilizing a collaborative, learner-centred approach. Embracing a multidisciplinary, integrated curriculum pedagogy in place-based/place-

¹ Each of these perspectives is explained from a community development lens by Jim Ife (2013). He details the need for interconnectedness of these perspectives and as part of ‘balanced development’ (p. 264 -266).

According to Ife:

- ‘Environmental’ is that which goes beyond simple environmental activities ...involves awareness, conscious raising, education, responsibility and action beyond the local community ... with consideration given to social and broader societal issues (p. 251-254)
- ‘Ecological’ incorporates holism, sustainability, diversity, equilibrium and interdependence being applied to both the natural world and to the social, economic and political order (p. 49 - 50)
- ‘Cultural’ has four components - preserving and valuing local culture, Indigenous culture, cultural diversity and participatory culture (p. 238 – 250)
- ‘Social’ involves the “identification of social needs and the provision of structures and services to meet them” (p. 215)
- ‘Economic’ is considered “a response to the economic crisis ... that seeks to relocate economic activity within the community ...” (p. 221)
- The political perspective is “ ... essentially about issues of power... it seeks to enhance capacity of communities to operate in the political arena ... ” (p.231).

conscious education (Cole, 2007; Gruenewald, 2005; McInerney et al., 2011) is 'deeply connected to the people, landscapes, cultures and politics students can know and experience locally' (Powers, 2004, p. 15) and is perceived as an important way to re-orient the way people live and work (DEWHA, 2009). Yunkaporta (2009b) agrees by stating that education programmes that incorporate the local community and links to the land integrates "real life contexts, experiences and values" (p. 11), which are important steps in holistic learning for Aboriginal Australians.

With definitions and characteristics of place-based education considered in the previous paragraph and where nuances, overlaps and complexities in understandings of place-based education have surfaced, this next section of this review will look at a selection of programs, projects and perspectives that apply features, processes and approaches introduced in this review in order to lay an informative platform for what may work.

- Powers (2004) evaluates two aspects of four place-based education programs in the United States (PEEC)² which have goals, in part, to enhance "community connections, increase understandings of connection to the local place and increase understanding of ecological concepts" (p. 19). An 'evolving' working model³ is offered that looks at understanding 'place', providing opportunities for school community interactions and skills enactment. Program consistency and effectiveness, as well as teacher practices are examined. Recommendations involve start-up approaches; teacher, administrator and community buy-in; partnerships and collaboration and communication (pp. 28, 29).
- Smith (2007) considers how place-based education in the United States challenges and transforms the 'regularities' of curriculum development and school based learning through consideration of a published report, *Rural Challenge Research and Evaluation Program 1999*. Case studies are reviewed that show positive outcomes with school and community connections through innovative practices (p. 191).

² The Place-Based Education Evaluation Collaborative (PEEC) formed in 2002 to evaluate programs in order to develop, identify and disseminate evaluation techniques, tools and approaches (Powers, 2004, p.19).

³ Change Theory for place-based education, figure 1, "acts as a springboard for understanding the potential of place-based education" (p. 19). It strives to build social capital which is believed to result in a healthy social and natural community.

Findings from CO-SEED⁴ examples, in primary and high schools (pp. 193 – 202), “demonstrate what is possible” (p. 193). Being an older study, a web link is noted below to provide more contemporary case studies and projects in the Rural School and Community Trust⁵.

- Mannion and Adey (2011) state that place-based education is founded on the relationships between adults and children “within and through place-change processes” (p. 35). They draw on intergenerational research from both Bowers (2008) and Gruenewald (2008b) to conclude that the term intergenerational is often automatically incorporated into the general term of ‘community’. Connecting place-based education with intergenerational practice recognizes that place-based activities involve people of all ages, stages of life, backgrounds and in many diverse places. This is perceived as a radical form of educational practice because it links school to place-intergenerational education through a different approach to learning and knowledge creation, and where the authors challenge thinking in asking who then becomes the educator and the learner, where education is actually taking place and what the goals might be in this context.
- Robson et al. (2009) explore the ‘Indigenous ways of knowing’ to enrich environmental understandings, locating this within a place-based context and a focus on contemporary natural resources and environmental management in New Zealand. ‘Indigenous ways of knowing’ refer to “how Indigenous and local people cultivate knowledge” (p. 173). This paper looks at the concept of ‘communities of learning’ which embraces the contributions, interactions and cooperation of key players who bring unique knowledge, world views and values. The authors write: “Rarely have Indigenous ways of knowing been recognized as adaptive, dynamic assets for building diverse development trajectories that reflect local needs and aspirations” (p. 173) but claim practical and meaningful engagement when it has occurred.
- Berkes (2009) asserts that traditional Indigenous knowledge as “process, rather than as content” should be examined. The researcher considers Indigenous ways of knowing in the context of global environmental change and concludes the need for

⁴ Community –Based School Environment Education Project (CO-SEED) created by the Antioch New England Graduate School in Keene, New Hampshire, United States.

⁵ <http://www.ruraledu.org/articles.php?tag=709>

deeper partnership of traditional knowledge with, in this context, science however the underlying principles in this paper could well be applied to place-based education.

- Yunkaporta and McGinty (2009) undertake a project that looks at how to work with Indigenous knowledge. Drawing on both The New South Wales Department's Quality Teaching Framework and Indigenous Pedagogies, this action research study surfaces approaches to teaching and learning that tap into "sophisticated Indigenous ways of knowing" p. 55. Drawing on local lore, language, the landscape and cooperatively working with Indigenous learning circles, storytelling and sharing of these stories is found to be the cornerstone of success.
- Yunkaporta (2009a) provides an '8 ways' pedagogical framework that assists teachers to incorporate Aboriginal knowledge and learning styles in everyday classrooms. The eight interlinked strategies fundamentally include storytelling that links to the land and its people as "there's no story without place, and no place without story" (p. 6). This framework's essential link between ecological and place-based learning incorporates both Western and Indigenous ways of learning in a non-linear fashion.
- Somerville (2010) may well inform further understandings of place-based education in her outline of three key principles for a 'reconceptualised place pedagogy': relationship to place constituted in stories and other representations, place learning that is local and deep place learning. These principles give rise to new emergent arts-based methodologies for developing and practising place-responsive pedagogies. "Any pedagogy of place must remain open and dynamic, responsive to the interaction between specific people and their local places" (p. 342).
- Kudryavtsev et al. (2012) are informants of 'place' literature with consideration given to place-based education literature and environmental education. Examples are given on how these can be applied (pp. 240-241) drawing the combination of experiential and instructional approaches which they hope "will spark further discussion about environmental education influencing a sense of place" (p. 242).
- Frisk & Larson (2011) add to the enquiry and relevance of transformative action, in response to behavioural change relevant to sustainability education. The authors put forward knowledge domains that ask questions on how systems function (technical information), how to progress actions (process-oriented), that consider

outcomes of differing behaviours (attitudes and consequences) and seek to understand what it is that motivates people (beliefs, perceptions and responsibilities).

It is at this stage of the literature review that the concept of sustainability needs to be more closely considered. There is a notable merge of place-based and sustainable education in the literature and where investigation into what is meant by sustainability in the first instance is appropriately summed up as “a complex and much contested concept but in essence ... understood as living in the contemporary moment in such a way as to provide for an equitable and secure future” (Green & Reid, 2004, p. 257). Linked to the local environment, sustainability is also grounded in environmental education (Feng, 2012; Jickling & Wals, 2008; Kennelly, Taylor, Jenkins, 2008).

- Green (2012) presents a teaching and learning framework that applies the theories of ‘place’, place ecologies and place-based pedagogy in the context of education, curriculum and sustainability. Examining two Australian schools, one in a coastal setting and the other a ‘horticultural/forest environment’, it is concluded that “children read and act the world through local geographies and diverse literacies, and in the process become invested in the places where learning occurs” (p. 340). Diverse literacies in this paper consider an integration of knowledge from various subject disciplines, eg. history, geography, mathematics and science, via aesthetic, arts- based and spatial literacies (p. 339).
- Duhn (2012) looks at ‘place’ from an early childhood education perspective to highlight the importance of engaging young children in environmental learning and, through a research project in New Zealand, considers the intersections between the local and global, local and Indigenous knowledge and ecological sustainability. The author draws strong conclusion that early childhood education has a place in contributing to “theory and practice of education for sustainability” (p. 19).
- Burns (2011) provides a focus on approaches and processes for transformative learning and action, in the context of behavioural and systemic understandings of sustainability issues for educators at postsecondary education level. Ecological principles, Burns suggests, “serve as a guide” (p. 3). In consideration of ‘what works’ in place-based education, the *Burns Model of Sustainability Pedagogy* may warrant

further review. Personal connections to places are seen as important, as is an understanding of diverse perspectives and finding solutions.⁶

As mentioned much earlier in this review, place-based education has been synonymously used with sustainability education as well as other fields of study and focus. Jickling and Arjen (2008) draw together “sustainable development, environmental thought, democracy and education” (p. 1) in a study which examines the shift from environmental education to education for sustainable development and highlights the problematic nature of the sustainable development ‘agenda’ within environmental education. Kennelly et al. (2008) considers this in light of the NSW’s Sustainable Schools Programme which was a response to the environmental education debate. In their work they cite earlier Australian studies (Connell, Fien, Lee, Sykes & Yencken, 1999; Loughland, Reid, Walker & Petocz, 2003) that indicated environmental education did not offer adequate student learning. This is supported by Stevenson (2007) who examines ‘contradictions of purpose and practice’ while a paper written by Kemmis and Mutton (2011) questions whether knowing what should be done for the environment results in acting on that knowledge. Tilbery and Wortman (2008) conclude that increased awareness of environmental issues does not result in change of attitudes and behaviours.

Adding to the environmental discourse and posing another layer of thinking is the work of Jim Ife (2013) who considers environmental responses to ecological problems to be too ‘lineal’ because problems and specific solutions are considered in isolation, a reflection of the dominant thinking of the Western world view according to Ife. He asserts another characteristic of environmental responses to be a search for solutions within the existing social, economic and political order, “capable of solving the problems through the application of technical expertise” (p. 34). What he is suggesting is social, economic and political change, supporting a ‘green perspective’ which he defines as one that “accepts the fundamental social-economic-political basis for the ecological crisis and the need for fundamental change” (p. 35). Ife (2013) discusses the concept of sustainability from an ecological principle perspective concluding that “within its proper ecological context the concept of sustainability is very powerful, and requires a radical transformation of the existing, blatantly unsustainable order” (p. 51). His work on eight dimensions of community

⁶ The Burns Model (2011) has an ecological focus that brings together content, perspectives, process, context and design.

development, these dimensions being social, economic, political, cultural, environmental, spiritual, survival and personal, warrants closer investigation as he explains the need for “holistic and integrated understandings of what community development means” (pp. 212-264).

Miles (2008) suggests that environmental education needs to be grounded in place, as this provides context for the learning and allows students to examine how natural places have been influenced by social, political, and economical decisions, while also incorporating socially, critical and political action goals of environmental education. This encourages students to care for their own place as well as explore how their place is interrelated with others (Miles, 2008). In particular, Miles advocates for an approach to environmental education where “experience, consciousness, and responsiveness to place provides opportunity for relationships with environments, living and non-living things” (Miles, 2013b p. 1). Miles (2013a) gives an example of a case-study where by ‘tearing down’ the school walls, the school and community worked together to create a local nature reserve which created a place for environmental learning. By doing this, “the community has played a role in shaping place, and the place shaped the community” (p. 4) and these partnerships contribute to rural regional sustainability. By focusing on how we live sustainably in place, it enables rural and regional communities to develop their sense of identity and local community pride (Miles, 2013a). A focus on place in environmental education also addresses some of the criticisms of environmental education (Miles, 2008).

The concept of triple bottom line (TBL), a term developed by John Elkington (1998), places the emphasis of sustainability on “economic prosperity, environmental quality and – the element which business had preferred to overlook – social justice” (p. 70). Sustainable development in this context takes economic growth and ecological sustainability into the social realm. Looking at this from different angles in the literature, “Companies recognize that aligning with non-profit organisations makes good business sense, particularly those non-profits with goals of economic prosperity, social well-being and environmental protection”, as a response to broad sustainability issues (Slaper & Hall, n.d., p.6). Corporate social responsibility, a ‘buzz word’ aligned with social justice discourse is seen by Manteaw (2008) as a “must do thing for corporations to show the human face of capitalism (pp. 428, 429). This author stresses the need for a collaborative bottom-up approach by businesses,

listening and responding to the voices of the community to guide decisions and activities. A study by Jickling & Wals (2008) raises discussion around the responsibility on government and private sector to consider 'people, planet and profit' from a more socially accountable perspective but also with closer scrutiny into interpretation and approach stating that "profit silently has become the undisputed component of the triple bottom-line (p. 3). Mitchell, Curtis & Davidson (2008) evaluate the process of triple bottom line reporting, with an aim to improve outcomes and in doing so put forward a framework, 'Evaluating processes of TBL reporting' (p. 73), with 'things to think about' in order to move towards sustainability. They stress the need to identify the unsustainable ways in which society functions.

The last section of this review summarises place-based and sustainable education in the more specific school context starting with participation, partnerships and collaboration with key players. Partnerships are seen as critical because they recognize the value and importance of local knowledge of the community involved in working to support "longevity" of sustainable education programs (Somerville & Green, 2012, p. 72). Expertise and knowledge of community members who work alongside schools are seen to contribute and extend the learning experiences. Alternative ways of understanding the nuances of place and place-based education may be best channelled through people, services, organisations and structures. Intergenerational partnerships, it seems, are further strengthened with student interactions. Ife (2013) examines conditions that are needed to encourage and support meaningful and genuine participation, believing activity or issues need to be considered as important enough in order for people to feel that their actions will make a difference. According to Ife, different forms of participation need to be acknowledged and valued, and with supportive structures and processes (pp. 173, 174).

On a more practical level, the literature shows that 'buy-in' from teachers and administrators will be impacted by attitudes, understandings, knowledge of sustainable development and sustainability, and practical issues such as time constraints imposed in conventional school timetabling (Cole, 2010; Kennelly et al., 2008; Summers, Corney & Childs, 2003). Powers (2004) provides evidence of positive impact on teacher practice in the areas of leadership, collaboration, curriculum and planning skills and interdisciplinary teaching. When teachers become collaborative participants with students who are also

encouraged to actively advocate in issues of concern they contribute to a socially critical approach and a shared responsibility, believe Kennelly, Taylor and Jenkins (2008, p. 58). However, Powers (2004) draws attention to administrative, technical, technological, and peer support needed by teachers. Active, positive participation may well be determined by further practical considerations that Powers notes as involving the school structure and how to skillfully implement place-based programs into the school curriculum. Tangible skills and resources are to be provided to teachers to then further develop with students.

Conclusion

This literature review has brought to the surface a vast body of literature that covers a broad range of connected and interconnected understandings, themes and responses to place-based education for sustainability designed to address the challenges noted in the opening paragraph. Common elements that have emerged may well be best summarized by Smith (2007) where he sees place-based education as adaptable and responsive to teacher, student and community needs. Organizational and conceptual changes need consideration in the specific 'place context'. He suggests that in the first instance teachers and students consider their "immediate situations as foundations for curriculum development" (p. 593). This enables and supports students to play an active role as key players in the school and community. Additionally, the voice of the community needs to be heard and where the overall goal is to share a common language and vision. In Australia and across the world rapid social and environmental change is calling for understanding and action that requires a holistic response from all sectors of the community. Environmental and ecological concerns feature alongside engagement of schools with local settings. Green (2012), whose paper focuses on education for sustainability writes of "integrated curriculum approaches" quoting Sterling (2008) on place-based education as "a gateway to a different view of curriculum, of pedagogy, of organizational change, of policy and particularly of ethos" (2012, p. 327).

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Section Two: Exploring concepts in sustainability- A Literature Review

Introduction

This section of the literature review explores themes in sustainability connected to rural, place and outdoor education and cultural diversity. Search terms covered:

- Sustainability, education
- Sustainability, environment
- Sustainability, rural
- Rural, education, sustainability, teacher
- Rural, place based, education, sustainability
- Rural, education, sustainability
- Outdoor education
- Cultural diversity and sustainability
- Aboriginal and Torres Strait Islander sustainability
- Deep ecology, social ecology and eco-socialism
- Sustainability in curriculum

Given the scope of the subject and the time limitations, this literature review offers a sample of the thinking in this area as a useful starting point for deeper inquiry.

What is Sustainability?

Between 1820 and 1920, the world population doubled from one billion to two billion. We reached 3 billion in 1960 and 7 billion in 2011 (<http://www.worldometers.info/>). This rapid rise in population prompted the Meadows' 1972 'The Limits to Growth' study on population, growth and material wealth. Roberts (2004) states that this study generated wide discussion on the 'state of global equilibrium'.

Another important milestone which took place in 1972 was the Stockholm Conference on the Human Environment. This conference resulted in the 'The Stockholm declaration', where the relationship between humans and the environment was acknowledged and led to the establishment of many environmental protection agencies and the United Nations Environment Programme (UNEP) (Palmer, 1998). The United Nations (UN) saw a growing

need for an organisation to address environmental challenges which were intertwined with economic and social conditions. Discussions generated from these types of studies and events led to conclusions that the only way to deal with the problems of global poverty and hunger would be through redistribution of wealth. Roberts (2004) highlights that there has been no easy way to achieve this, indeed, the idea that economic growth must cease as environmental limits are reached is not popular. Policies with aims derived from such a philosophy have been difficult to frame and enforce (Roberts, 2004).

The concept of sustainable development emerged from this conundrum (Roberts, 2004) and resulted in the establishment of the World Commission on the Environment and Development (WCED) in 1984. The purpose of the WCED was to establish an independent body to focus on environmental and developmental problems and solutions after an affirmation by the UN. The UN General Assembly explicitly called attention to two important ideas:

- The well-being of the environment, of economies and of people is inextricably linked.
- Sustainable development involves co-operation on a global scale (Strange & Bailey 2008).

The WCED, also known as the Brundtland Commission, (named after the Chairperson Gro Harlem Brundtland) aimed to create, a united international community with shared sustainability goals and in 1987 published 'Our Common Future', which is author to the most commonly referred to definitions on sustainability, which reads:

'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Brundtland, 1987, P. 43).

This landmark document went onto be influential at the 1992 Earth Summit held in Rio De Janeiro and the third UN Conference on Environment and Development in Johannesburg, resulting in a range of key initiatives and framework documents (Agenda 21, Earth Charter, Kyoto Protocol - see timeline in this chapter) detailing actions or options for change. The 1992 Earth Summit led to the development of principles relating to an integrated approach to the environment, health and sustainable development, along with a plan of action. A key

message to come out of the Earth summit was that the principle of respect for nature and the control of environmental degradation should guide human activities in order to balance the potential conflict between health and the environment (Landon, 2006, p. 8).

Strange and Bailey (2008) unpacks the Brundtland definition and makes it explicit that sustainable development is about integration:

Developing in a way that benefits the widest possible range of sectors, across borders and even between generations. In other words, our decisions should take into consideration potential impact on society, the environment and the economy, while keeping in mind that: our actions will have impacts elsewhere and our actions will have an impact on the future (p. 24).

Similarly, Somerville and Green (2013), state that sustainability represents an ideal that will be achieved when human-caused environmental degradation has been reversed, along with overconsumption and gross economic injustices that deprive future generations of the ability to meet their needs. Green and Reid (2004) rephrase this definition by stating sustainability can be understood as living in the contemporary moment in such a way as to provide for an equitable and secure future, emphasising this has particular resonance for rural-regional Australia.

Strange and Bailey (2008) go on to suggest the need to shift the focus from compartmentalising issues to considering issues in a holistic way across the economic, social and environmental aspects of any issue, this is a theme which is reflected in all sustainability literature, as will become evident through this literature review.

Berger and Steurer (2009) state that in the 1990's social and economic issues were only taken into account if they were relevant to environmental concerns. In addition, sustainable development has been concerned with addressing governance challenges such as long term perspective (intergenerational equity) and the involvement of stakeholder participation. Since then, sustainable development has been redefined as balancing the economic, social and environmental pillars of sustainability, ruling out the prioritisation of environmental issues. Thus, horizontal policy integration in the context of sustainable development strategies is

understood as balancing the economic, social and environmental interests and policies in a way that trade-offs between them are minimised and synergies are maximised. In systems thinking, these issues are combined not as single entities added to each other but as one entity, based on the thinking that the whole is greater than the sum of its parts – the bottom line. Integrating these three elements together forms the foundation for effective governance for sustainability (Grootjans, Townsend, Butler & Heyworth, 2005, p. 203).

The Triple Bottom Line (Grootjans, et al., 2005; Landon, 2006) is an accounting or reporting system that evaluates the social and environmental performance as well as its financial outcomes/resources. Elkington (1997, as cited in Grootjans et al., 2005) described the TBL elements of sustainability as:

Economic bottom line: (growth, efficiency, stability) financial capital of an organisation; physical capital (machinery, equipment etc.) human capital (skills, experience, knowledge in the organisation). Sustainability revolves around cost competitiveness and future projections, demand, profit margins, maintenance of human capital.

Environmental bottom line: (biodiversity, resilience, natural resources, pollution) critical natural capital essential to the maintenance of life and ecosystem integrity and renewable, replaceable, or substitutable natural capital.

Social bottom line: (empowerment, inclusion, consultation, governance) focuses on social capital and human capital.

While concepts of sustainable development continue to draw from the Brundtland definition, they have similarly evolved through global and national efforts to shape and influence nations globally to make policies to support sustainable development (see timeline later in this section). Strange and Bailey (2008) state that first, there is the realisation that economic growth alone is not enough: the economic, social and environmental aspects of any action are interconnected. Considering only one of these at a time leads to errors in judgment and “unsustainable” outcomes. Focusing only on profit margins, for example, has historically led to social and environmental damages that cost society in the long run. By the same token, taking care of the environment and providing the services that people need depends at least in part on economic resources.

Palmer (1998) highlights two modes of sustainability, sustainable growth and sustainable development, developed by Turner and O’Riordan (1988) as identified in Table One.

Table one: Two modes of sustainability

(Turner and O’Riordan, 1988 as cited in Palmer 1998)	
Sustainable Growth	Sustainable development
Technocentrist	Ecocentrist
Essentially a technical concept	A broader concept embracing ethical norms, eg. bioethics, intergenerational justice
Bound by formalistic rules of existing institutions	Requires new institutions to deliver
Social reform	Social revolution
Conservation one of several goals within an overall materials policy including waste recycling/reduction	Conservation the sole basis for defining a criterion on which to judge policy/alternative allocations of resources
Three basic elements of policy: resource recovery/recycling, residuals management, waste reduction	Policy derived from theories of, for example, zero growth, steady state economy, bioeconomic equilibrium, coevolutionary development.
Requires a modified economics	Requires a new economics
Requires attention to	Requires attention to four premises
<ul style="list-style-type: none"> - Knowability (<i>the amount, rate and other characteristics of renewability are knowable and calculable</i>) and - Homeostasis (<i>renewable resource systems operate broadly around equilibria or can be manipulated to approximate steady states following human intervention – homeostasis is a preferred state of nature</i>) 	<ul style="list-style-type: none"> - Knowability - Homeostasis - Internal bioethics (<i>drawing upon a renewable resource even below some threshold of take has implications for only the tightly confined ecosystem that is that resource</i>) - External bioethics (<i>utilising a renewable resource up to the point of sustainable yield is morally justifiable even though that resource, below the threshold of optional ‘take’ may have other ecological values and functions.</i>)
Core is reforming social systems to ensure reproduction of conditions of production	Core is changing social systems to ensure popular control of livelihood or the conditions of production
Is manageable and politically acceptable because it is safely ambiguous	Is politically treacherous since it challenges the status quo
The greening of capitalism	The greening of socialism

In December 2002, the United Nations General Assembly proclaimed the years from 2005 to 2014 the Decade of Education for Sustainable Development (UNDESD). In response, the Australian Government developed a document '*Caring for Our Future*' (Commonwealth of Australia (CoA), 2007) which outlined a ten year framework to foster sustainable development through education and learning. The principles of this framework include:

- futures thinking;
- the importance of good process;
- critical thinking and reflection;
- capacity building for individuals and organisational change;
- innovation;
- mentoring and facilitation;
- genuine participation in decision making;
- the formation of partnerships for change; and
- lifelong learning.

Australia's approach to the decade was to seek to utilise these concepts through a range of Australian Government frameworks including '*Educating for a sustainable future* (CoA, 2005) and *Living sustainably: The Australian Government's National Action Plan for Education for Sustainability* (CoA, 2009). The Australian Sustainable Schools Initiative fits within this global and national framework for action (CoA, 2009) (see **Appendix A** for more on the AuSSI).

In October 2012, the National Sustainability Council (NSC) was established by the Australian Government as a source of independent expert advice on sustainability. One of the Council's primary roles was to produce a public report every two years drawing on the national sustainability Indicators which were also published in 2012. Prior to the Council's disbandment in 2014 by the incoming Abbott Government, released its first and only report *Sustainable Australia Report 2013: Conversations with the future* (NSC, 2013). This report provides a thorough overview of issues which are set to have impact on the next generation of Australians. It covers a broad range of sustainability issues looking back and projecting forward. Key issues include issues of health, education, wellbeing; ageing and population are discussed, as are issues related to economy such as employment levels, income, innovation, and impacts on equity and the environment. The NSC refers to the Brundtland Commission's 1987 Our Common Future report and definition and states that the concept of sustainability continues to evolve. Core features of most definitions include:

- Sustainability is concerned with the future and with the ability to maintain certain values, assets or capabilities over the long term.

- Sustainability involves decisions that address the interaction between environmental, social and economic domains.
- Sustainability requires choices considering equity within society and across generations.

They go on to state the wellbeing of individuals, communities and society has been widely accepted as an appropriate objective of governments and has become increasingly influential domestically and globally (NSC, 2013, p. 9). The NSC approach to assessing sustainability focussed on measuring stocks of social, human, natural and economic capital, as per the sustainability indicator table (Table Two).

Table Two: National Sustainability Council, Sustainability Indictors

Sustainability indicators	National Sustainability Council, Sustainability Indictors
Social	Education, health, community engagement, employment, security
Environmental	Climate, Atmosphere, Biodiversity and ecosystems, Water, Natural resources
Economic	Wealth and income, housing, transport and communications, productivity and innovation, additional economic information
Contextual	Population, cultural diversity, migration, land use

There are a number of additional indicators that can inform thinking on issues of sustainability, health and wellbeing, some of these are listed in **Appendix B**.

Ecological Perspectives

Palmer (1998) states that the concept of ecological sustainability and the notion of sustainable development are by now well subsumed within the tension that defines and characterises modern environmentalism. As with sustainability, terms are open to different interpretations and viewpoints, however the following provides a brief overview of ecological perspectives.

An ecological analysis starts with the major environmental crises facing the world which has led Green thinkers to seek a radical alternative, which give the Green position a sense of both urgency and inevitability. Ife and Tesoriero (2006) discuss ecological standpoints at some length, and suggest that environmental responses to ecological problems have two characteristics. First, they seek to solve specific problems by finding discrete solutions, for example, global warming can be solved by reducing greenhouse gases, increasing the use of renewable energy etc. Secondly, they seek solutions within the existing social, economic and political order. It is not seen as necessary to change the nature of society in any fundamental way, but rather, relies on technical solutions. They are a conventional considered linear response/approach.

Alternatively, Green responses to environmental problems take a more fundamental approach. It sees environmental problems as being merely the symptoms of a more significant underlying problem. They are the consequence of a social, economic, and political order which is blatantly unsustainable which needs to be changed (Ife & Tesoriero, 2006). Green ideology comes from a holistic standpoint, where environmental problems are related and the result of social, economic and political systems. In order to address the issues, the system needs to be addressed, a symptomatic response is inadequate over the long term. Ife and Tesoriero (2006) suggest that, the Green, rather than the environmental, position has a strong argument, where if the ecological crisis is to effectively resolved, it will be through social, economic and political change, rather than through scientific and technological progress.

Eco-socialism

The eco-socialists argue that the ecological crisis is caused by capitalism. The development of capitalism has seen the rise of waste, overconsumption and pollution, with an equal

measure of a lack of responsibility for the health of the planet. Conventional socialists have generally accepted and emphasised the need for sustained economic growth as a way to enable increasing wealth to be shared more equitably. A green position questions the viability of continued economic growth, at least in its traditional form. Conservative critics criticise Green politics as being 'socialism in disguise' and have disparagingly referred to Greens (Ife & Tesoriero, 2006). Critics argue that it is not capitalism alone that places such a value on growth, and that capitalism is just responding to peoples' needs. If people didn't want the goods that capitalism produces they would not buy them. However, these issues do not negate the argument that capitalism is premised on the idea of growth and has contributed to the environmental problems that society is grappling with now (Kenny, 2006).

Eco-feminism

Ife & Tesoriero (2006) state that while eco-socialists see the problem in terms of capitalism, and eco-anarchists see it in terms of structures of domination and control, eco-feminists see the problem of an ecologically insane world primarily in terms of patriarchy and its consequences. Eco-feminism views patriarchal structures of domination, oppression and control have resulted in a competitive, acquisitive and exploitative society and has ultimately proved to be unsustainable. Eco-feminists call for patriarchal structures to be challenged, dismantled, deconstructed and replaced. The eco-feminist position raises two questions for those developing a Green analysis. First, how to ensure that whatever change is initiated does not perpetuate the oppression of women or the structures and discourses of patriarchy but serves to challenge, overthrow such structures and discourses. Ife & Tesoriero (2006) state the second issue is the extent to which women's experiences, consciousness and world views represent an alternative paradigm within an ecologically sustainable social, economic and political order might be successfully developed.

Deep ecology

Cudworth's (2003) chapter on environment and society in green social and political theory provides an outline of some of the general characteristics of green political and social thought where it is suggested that the most significant contribution of deep ecological thought has been the concept of anthropocentrism, whereby deep ecologists have tended to argue that modern western societies are 'anthropocentric'. Cudworth (2003) explains

that an anthropocentric society is one with a dominant worldview places humans in a pre-eminent position with respect to the environment. Deep ecology rejects the dualistic view of humans and nature as separate and different. Naess (1995) argues that humans are a part of the natural environment and are one with nature, and have a tendency to appreciate all life forms, remaining conscious of their intrinsic value and dignity, as opposed to killing and conquering. Deep ecologists try to live with nature's ways and rhythms rather than just visit beautiful places. Deep ecology combines its concerns for nature with a desire to transform society; to choose meaningful work rather than just making a living, make efforts to protect local ecosystems and participate in change making processes, respectfully and with non-violent words or deeds (Naess, 1995).

Cudworth (2003) explains that deep ecologists have been criticised for assuming that all human cultures are collectively and equally responsible for generating an environmental crisis, because their theory of 'anthropocentrism' does not take into account of the ways in which human societies are differentiated. The following table provides a comparison between deep ecology, social ecology and eco socialism.

Table three: Deep, social and socialist ecologies – some comparatives themes (Cudworth, 2003)

	Ethics, nature and human nature	Approach to scientific knowledge	Conception of relationship between environment and society
Deep ecology	Humans are animals. Humans are not separate from nature, but a part of nature. Ethics must be human-centred. All nature has intrinsic value.	Some science is responsible for justifying and enabling environmental destruction. Systems science, such as Gaia theory, understand the interdependence of the Earth's organism and eco systems.	Contemporary society is 'anthropocentric'. Humans as a species dominate the natural environment and are collectively responsible for damaging it. Anthropocentrism fails to appreciate that natural resources are finite.
Social ecology	Humans are special kind of animal because they are rational and reflective beings. Ethics is inevitably human centred because humans must attribute value to nature.	Science is value free. It is shaped, however, by social forces of capitalism and the state, which means it may be complicit in environmental damage. Ecology is a revolutionary science because it sees	The destruction of the environment is a result of intrahuman domination or hierarchy. Oppression and exploitation in terms of class, caste, gender, race and by the state, leads to human

		human society and the natural world as interdependent.	exploitation of natural resources.
Eco-socialism	Humans and other animals have a specific nature or species life. Different species have different kinds of life needs. Therefore, different species need different treatment. Humans attribute ethical value and decide what such treatment might be.	Science can have radical agendas, even Darwinian evolutionary science can be ecological science. A range of scientific approaches is considered	Capitalism commodifies nature and defines natural resources as objects for human use. The organisation of work means that humans are alienated from nature. Social deprivation leads to environmental problems.

Deep ecologists appreciate diversity in others and see everyone as equal; valuing complexity, not complication (Naess, 1995). Merchant (1992) explains another champion of deep ecology is Fritjof Capra (see the Turning Point and the Tao of Physics) as he sees deep ecology emerging as a new paradigm, which offers a holistic worldview, emphasising the whole over the parts and does not separate humans from the environment. Capra's transition, states Merchant (1992), coincides with a transformation in values that could bring about a balance between the rational and the intuitive, the reductionist and holistic, and the analytic and synthetic. The purpose is not to abandon one mode for the other, but to work toward a balance between them.

Capra is not alone in talking about the inadequacies of 'the dominant paradigm', which is referred to as Western, Industrial, Cartesian, Newtonian, mechanistic (Ife & Tesoriero 2006). Thinkers such as Capra, Rifkin, Henderson, Ornstein and Ehrlich suggest that while this paradigm has undoubted benefits for humanity it has reached a point of increasing dysfunction which won't be resolved until we develop an alternative.

Ife and Tesoriero (2006) state that challenges to the dominant paradigm have emerged from a number of sources, one which has been very influential has come from the physical sciences. The impact of the Heisenberg uncertainty principle quantum physics, relativity and chaos theory has been to question the certain, ordered and predictable world, and to acknowledge the existence of unpredictability and uncertainty.

Ife and Tesoriero (2006) point out that the social sciences have had a similar impact on the dominant paradigm through the critique of positivism and empiricism. The humanities postmodernism has also had a major impact on social and political thought, and has been an important influence in seeking alternative formulations. It reflects the dominant paradigm as being the essence of the modern and seeks different, non-linear models of cultural production and critique that reject conventional forms of logic and discourse. According to postmodernism, reality is characterised by multiple discourses. Kenny (2006) states that supporters of postmodernism argue that humanity has lost its way and postmodernism offers a radical and even revolutionary means of responding to the precarious state of humans and the earth. Critics of the model argue that its sum effects create a defeatist and individualistic world, where individuals abrogate their responsibility to collective processes and wellbeing, lest they should be seen as meta-narratives (Kenny, 2006).

Ife and Tesoriero (2006) state that while Capra's analysis weakness is in the failure to deal effectively with issues of social structure, discourses of power and structural inequality, it has made an important contribution in emphasising the importance of a holistic perspective rather than linear thinking. Ife and Tesoriero (2006) suggest that all the positions above could be more appropriately referred to as new paradigm thinking as opposed to the term Green.

Please refer to the glossary at **Appendix C** for extended sustainability definitions and related concepts.

Globalisation

There are opposing views on globalisation its meaning and its value. Changes in the world's economic, political and social systems have brought unprecedented improvements in human living conditions, in both developed and developing countries. The process of globalisation has accelerated over the past two decades, creating a human crisis as well as a threat to the entire planet (Ledwith, 2007). Signs of breakdown are everywhere: disintegration of families; destruction of Indigenous societies, degradation and annihilation of plant and animal life; pollution; crime, alienation and substance abuse, unemployment, and a widening gap in incomes and productive capabilities (Davis & Cooke, 2007).

Gough and Scott (2007) suggest there are those that see globalisation as real and beneficial, some see it as a process capable of liberating individuals from the vagaries of national government policy decisions and resource management so that they can compete freely in a global marketplace. Ife and Tesoriero (2006) suggest globalisation is almost exclusively economic. It is about the integration of trade and financial markets at a global level and the breaking down of national barriers. The idea that the economy and economic growth can and must take second place to the needs of the environment has been a core policy assumption of many governments around the world (Ife & Tesoriero 2006).

Ledwith (2007) highlights that since the Second World War there is evidence of a fivefold increase in economic growth and at the same time poverty gaps between nations and within nations has doubled. Ledwith (2007) argues that this is central to sustainability and social justice – ‘we cannot operate on a naive interpretation of social justice which aims to lift the standards of living of the poorest in line with the artificially crated greed of the rich, when the world is not able to support such excesses’. She goes onto state that critical connections like this provide us with a picture of the interlinking dimensions of poverty. Setting this within an understanding of world poverty and environmental justice gives insight into the ways in which the problems lie with disproportionate levels of consumption in Western societies which the earth cannot sustain (Ledwith, 2007).

Changing consumption patterns are broad and area addressed by the United Nations through Agenda 21, under the areas of energy, transportation, and wastes, economic instruments and the transfer of technology. The United Nations Environment Program (UNEP), highlight that over consumption, poverty and environmental degradation are closely interrelated. While poverty results in certain kinds of environmental stress, the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern, aggravating poverty and imbalances. The UNEP notes that more needs to be known about the role of consumption in relation to economic growth and population dynamics in order to formulate coherent international and national policies. See UNEP for more information

<http://www.unep.org/Documents.Multilingual/Default.Print.asp?DocumentID=52&ArticleID=52>

Concentration on the economic without considering other international agendas of environmental protection, education, cultural exchange, human rights and social justice comes at a high price. Some suggest that globalisation has led to a loss of cultural diversity (Harmsworth, 2002) and the destruction of local communities, while offering the world's poor next to nothing. Worldwide, Indigenous cultures are being increasingly swamped by cultures dominated by capitalism and consumerism, which are based on individualism rather than communal cooperation, sharing and caring (Harmsworth, 2002). Ife and Tesoreiro (2006) refer to the globalisation of culture, rather than a globalisation of citizenship, sometimes referred to as McDonaldisation or Disneyfication, eating the same thing, listening to the same music, playing the same games.

Numerous languages are threatened or are lost in the Asia Pacific region through migration and settlement (Adger, Barnett, Chapin, Ellemor, 2011; Nettle & Romaine, 2000). Globally, there are approximately 7000 known languages with half of these are destined to be threatened or lost by the end of this century. As the world becomes more intertwined, many minority language speakers stop using their traditional languages as they regard them as economic and social liabilities (Caffery, 2009). Every time a language dies so too does a unique view of the world (Grimes, 2001). The world has lost unique cultural and ecological knowledge (UNESCO, 2005, p. 6) including thousands of years of vital knowledge gained from experience, trial and error, in areas of knowledge as diverse as land management, native animal behaviour, the use of plants for medicinal purposes and human evolution and migration (Caffery, 2009). Ostler (2003) argues that globalisation is the "biggest threat of all" (p. 30). Preserving cultural practice is important as a mechanism for expressing cultural and spiritual identity and it provides a boundary that is distinctive to specific Indigenous nations (Nash, 2009). UNESCO (2005) argues that "the loss of any single language may be the key to answering fundamental questions of the future" (p.3).

Furthermore, in a speech to the opening of the annual meeting of United Nations Human Rights NHCR's Executive Committee, The High Commissioner for Refugees, Guterres said UNHCR was facing a level of refugee crises unmatched in its recent history, with simultaneous new emergencies in Syria, Mali, Sudan and South Sudan, and Democratic Republic of the Congo (DRC). So far this year, more than 700,000 people have fled from the DRC, Mali, Sudan and Syria. Guterres said UNHCR's capacity to help the worlds forcibly

displaced was being 'radically tested' by this acceleration in new crisis. He praised countries that have kept borders open to people fleeing conflict. The High Commissioner also warned that the costs of helping the world's more than 42 million forcibly displaced were escalating fast, with protracted large-scale displacement situations continuing – for example, in Afghanistan and Somalia (Guterres, 2012).

A June 2014 report which details Oxfam's proposals for the Millennium Development Goals post 2015, highlights that disasters and conflict can also entrench inequality. The burden of losses is significantly higher for poor people, a larger proportion of whose wealth is generally held in physical assets that are vulnerable to conflict and disasters, and for whom financial protection and state support are often severely limited. Women and girls are often most vulnerable as a result of widespread pre-existing discrimination. The instability and insecurity that accompany conflict and disasters can lead to an increase in violence against women and girls (Oxfam, 2014a).

Whether it is global or local, there are acts of violence and injustice directed in part from one person to another based on their religious and/or cultural backgrounds. In Australia, for example, Aboriginal peoples report high levels of racism that result in feelings of exclusion, disempowerment, low self-esteem, stress and anxiety (HREOC, 2009; Victorian Health Promotion Foundation, 2009). Miller (2010) states that in order to broaden the scope and purpose of sustainability it is important to have an understanding of history and how Western paradigms have had adverse impacts on social, political, environmental and economic systems on a global scale and why it is important that we consider social justice, inclusion, fairness and reconciliation as part of the broad sustainability agenda. Miller (2010) suggests that in Australia social, political and economic issues including reconciliation, fairness and inclusion have been discussed as part of the broad sustainability agenda in recent years where it is acknowledged that reconciliation is one of the most pressing ethical, political and economic issues on the Australian landscape and forms part of a holistic view of sustainability. Reconciliation includes justice, equality, recognition and healing (Langmore, 2007).

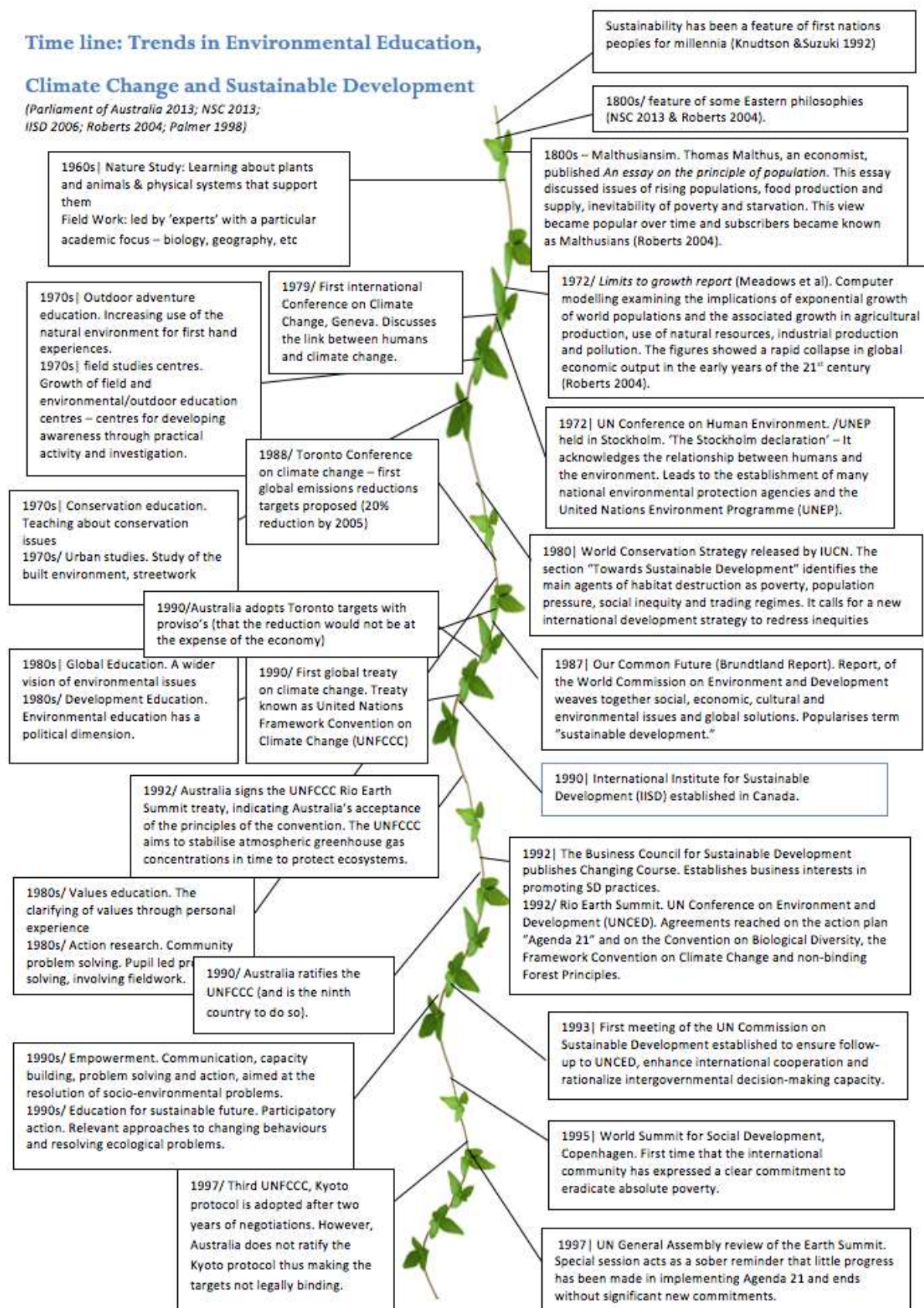
Ife and Tesoriero (2006) suggest that most of the important decisions that affect people's lives, and that affect communities are made at the global level, in boardrooms, stock exchanges, investment houses and global forums, far removed from the local context.

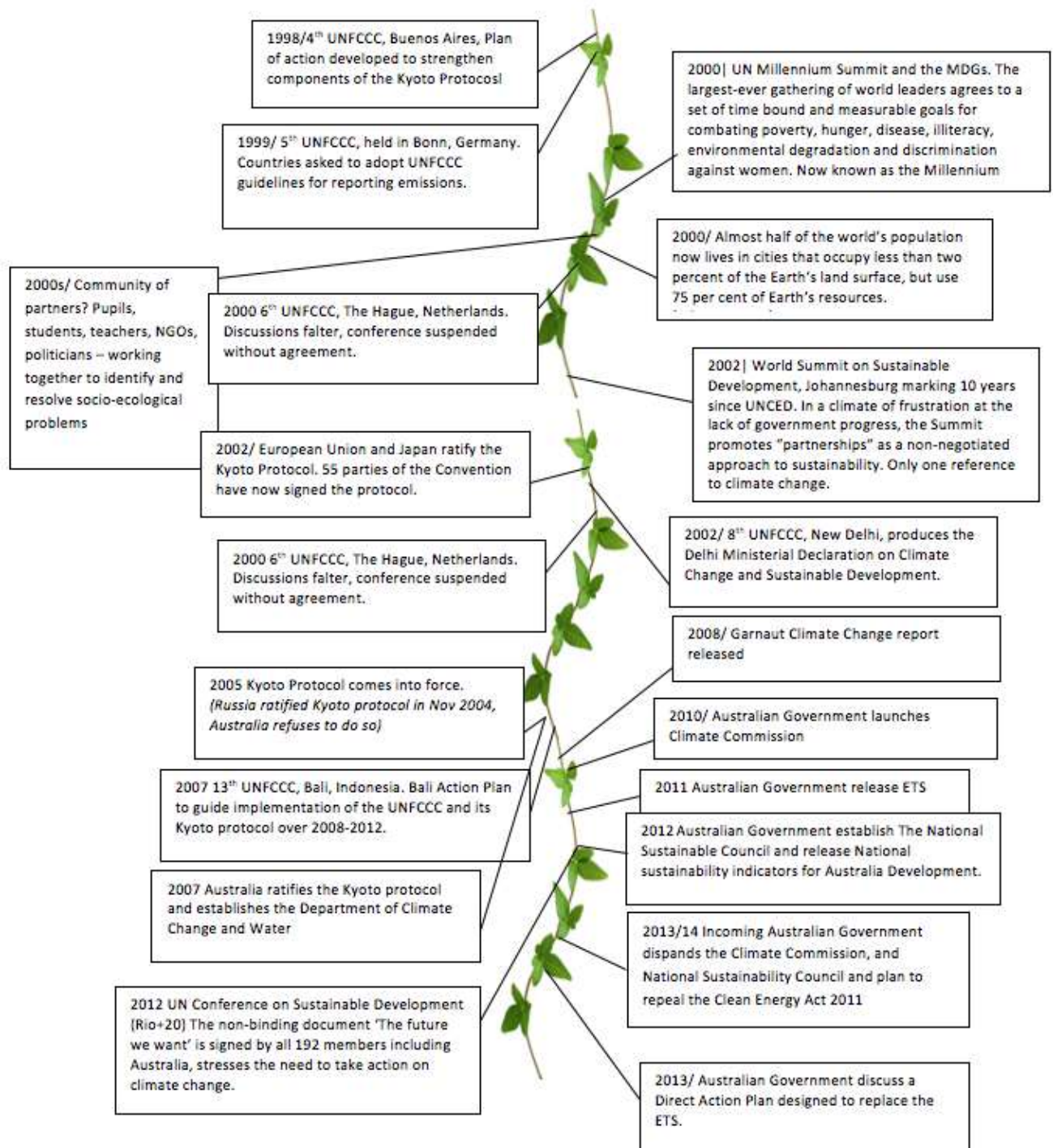
Giddens (1994) discusses the notion of globalisation beyond a top-down economic process. Robertson (1995) referred to this process as glocalisation, which enables the local to influence the global (see for example <http://glocalforum.flyer.it/default.php>).

Howes (2005) suggests that while far from perfect, the initial concept of sustainable development, had the potential to generate a policy framework to address the economic, social, political and ecological problems associated with industrial development. It also offered a way to abate the clash between neo-liberalism and environmentalism by including environmental groups in policy making forums. National policies, however have systematically narrowed the concept to suit a pre-existing political and economic agenda, which serves economic growth over environmental and social sustainability concerns. Thus, proving the challenge of reforming institutions founded on nineteenth and twentieth century ideals to effectively address twenty first century issues.

Time line: Trends in Environmental Education, Climate Change and Sustainable Development

(Parliament of Australia 2013; NSC 2013;
IISD 2006; Roberts 2004; Palmer 1998)





Pillars of Sustainability

Relational and holistic concepts of sustainability and sustainable development are throughout the sustainability literature, and as outlined in table two below, incorporate issues such as food security, poverty, sustainable tourism, urban quality, women, fair trade, green consumerism, ecological, public health and waste management as well as those of climate change, deforestation, land degradation, desertification, depletion of natural resources, loss of biodiversity and terrorism are primary concerns to sustainable development (see CoA, 2005; Feng, 2012; Hunting & Tilbury, 2006; Lang, 2007; Stibbe & Luna, 2009; Tilbury & Wortman, 2004).

Lang (2007) prepared a sustainability table (see Table Four below) as tool for planning sustainability curriculum. Many of these themes are discussed throughout this paper:

Table four: Themes and concepts across the four pillars of sustainability (Lang, 2007, p. 57)

Ecological sustainability	Political sustainability	Economic sustainability	Social/cultural sustainability
Biodiversity	Advocacy	Closed cycle economy	Community engagement
Carrying capacity	Civics and active citizenship	Ecological footprint	Cooperation & collaboration
Climate change	Conflict resolution	Ecosystem services	Cultural diversity
Conservation	Corporate greenwashing	Energy efficiency	Cultural heritage
Ecology	Democracy	Globalisation	Human rights
Ecological dysfunction	Empathy	Life cycle analysis	Indigenous cultures and wisdom
Ecological footprint	Good governance	Natural capital & renewable resources	Intergenerational equity
Environmental monitoring	Human rights	Over consumption & advertising	Intercultural harmony
Environmental quality	Intergenerational equity	Precautionary principle	Peace
Extinction	Interspecies equity	Resource recovery	Poverty
Habitats	Participatory decision making	Standard of living	Religious faith diversity
Interdependence	Power	Sustainable consumption	Social justice
Natural cycles and processes	Resilience	Sustainable development	Social quality
Natural resource management	Sustainability values & principles	Triple bottom line	Spirituality
Pollution	Tolerance	Waste hierarchy	Sustainability values and principles
Wildlife corridors	Understanding and respect	Waste Minimisation	Sustainable practices

Environmental

Due to scope of the review, not all environmental sustainability issues are covered in this paper and they are fundamentally well known. However many of them are touched upon in discussion points. As indicated above through Lang's list, the major global issues regarding environmental sustainability include climate change, population and income, pollution, depletion of the earth's natural resources, extinction of species, the loss of wilderness, erosion, desertification, deforestation, nuclear waste, urbanisation, health care, food, fisheries, agricultures, materials, education, energy and consumption (Ife & Tesoriro 2006; Rogers et al., 2006).

Climate Change

Given the impact of climate change has on pretty well everything in the above mentioned list, it is worthwhile to provide a snapshot of what current reports are saying.

The Climate Council of Australia recently released a report which unpacks the Intergovernmental Panel on Climate Change (IPCC) fifth assessment report on climate change. The Climate Council state that the IPCC is the most authoritative international body on climate change science and impacts. IPCC assessment reports are subject to an extremely rigorous review process through which the IPCC reports conclude that climate change is occurring as a result of human activities. Other key findings include increased evidence that climate change is already affecting many natural and human systems and poses significant risks to human health, ecosystems, infrastructure, agricultural production and communities. For Australia:

- This will have a marked impact on the agricultural production in the Murray-Darling Basin if projections of severe dry conditions are realised.
- There are risks of increased loss of life, damage to property and economic loss to bushfires in southern Australia.
- Hot extremes have become more frequent and intense, while cold extremes have become rarer. Increased hot weather is expected. Similarly there is increased frequency and intensity of flooding from extreme rainfall events.
- The Great Barrier Reef is under threat. If average global temperatures rise above 2 degrees it is expected that few coral dominated systems will survive.

- Reducing the risk in Australia of water shortages, bushfire weather, extreme heatwaves and decreased agricultural production will depend on how rapidly we are able to reduce carbon emissions locally and globally.
- People living in poverty are and will be, hardest hit by the effects of climate change. Vulnerable communities will struggle to cope with additional pressures created by climate change, including impacts on crop yields, infrastructures, communities, livelihoods, rising sea levels and homelessness (Climate Council of Australia, 2014).

For detailed information on the state of the Australian climate please refer to the CSIRO State of the Climate Report 2014

<http://www.csiro.au/Outcomes/Climate/Understanding/State-of-the-Climate-2014.aspx>.

These findings build on the work of The Australian Climate Change Authority, which released its final report '*Reducing Australia's Greenhouse gas emissions – targets and progress review*' in February 2014 after being disbanded by the Abbott Government in 2013. The report highlighted that climate change science is clear, that the world is warming and human activities are the dominant cause:

Climate change poses major risks for Australia's people, economy and environment. A warmer climate is predicted to increase the frequency and intensity of weather extremes, such as heatwaves, droughts, floods and bushfires, and to cause rises in sea levels. Australia is likely to better adapt to projected impacts if global warming is limited to less than 2 degrees above pre-industrial levels, with large increases, adaptation can be expected to become increasingly costly and challenging (Climate Change Authority, 2014, p. 7).

Australia has a formal international undertaking to reduce emissions by at least 5% by 2020, and has indicated it might do more under certain circumstances. A new international agreement, covering emissions reductions goals beyond 2020, is scheduled to be negotiated by the end of 2015. This agreement is intended to cover all major emitting economies; Australia will be expected to indicate its post 2020 targets by the first quarter of 2015 (2014, p. 8).

This Climate Change Authority review provides the current Government advice based on the latest evidence on climate science and the impact of climate change, international action to reduce emissions and economic and social implications for Australia. It provides background on what Australian governments at all levels have implemented to reduce emissions over the last two decades and it is acknowledged that there has been considerable change in the suite of policies over time. While the Government is currently revising Australia's climate policies, this document provides an overview of Australia's policies and progress to date.

Kent (2009) postulates that responses to climate change mitigation within Australian are increasingly relying on individual actions and commitments to behaviour change at the personal and household level, through for example, participation in Earth Hour, and activities aimed at reducing personal and household ecological footprints. Kent (2009) suggests that the concept of individual responsibility arose in the 1970s out of neoliberals and has been embraced globally. The calls for individual responsibility are universally appealing, where increasingly their citizens, particularly in western countries, are called to take on a greater responsibility for one's own health, education, employment. This response is appealing to the political right who dismantle state structures for the public provision of services and to replace them with market driven, private sector activity (Ife & Tesoriero, 2006). There are a number of thinkers who contest this ideology as helpful (see Kent, 2009) Among other things it raises issues for the public in terms of institutional trust, capacity, capability and duty of care, structural and systems impediments; and highlights the inequitable and uneven power relationships that operate between the individual citizen and the state.

Interestingly, the third annual survey of Australian attitudes to Climate Change (Leviston et al., 2013) report that across the 5000 respondents, most were in agreement that climate change is happening, but there was contention as to whether the major driver is natural variability or human activity. Those who thought climate change was largely human induced displayed higher levels of worry, anticipated individual harm, had greater experience with climate change and placed greater importance on climate. Those people who suggested climate change was not happening at all (7.7% of respondents) consistently gave the lowest ratings to attitude items. Opinions about the causes of climate change in turn were strongly

associated with political voting intentions. Respondents were asked to nominate who they intended to vote for in the next Federal election.

Those who intended to vote for Labor or Greens were far more likely to think that climate change was human-induced, while those intending to vote Liberal and National were much more likely to consider climate change a product of natural variation (Leviston et al., 2013). Diethelm and McKee (2009) state that denialists are driven by a range of motivations, be it greed, ideology, faith, or eccentricity. Responding to denialists require an understanding of tactics used and having an awareness that discussion and exchange of discourse employed by academics is not the process observed by denialists. Climate change denialists employ some or all five characteristics in a concerted way.

Table five: Strategies used by denialists (Diethelm & McKee, 2009)

Identification of conspiracies	Denialism does not concur with the scientific community, rather they assert that those scientists are engaging in a complex and secretive conspiracy. Denialists will argue that the peer review process is seen as a tool by which the conspirators suppress dissent, rather than as a means of weeding out papers and grant applications unsupported by evidence or lacking logical thought. A variation of conspiracy theory is inversions, in which some of one's own characteristics and motivations are attributed to others. For example tobacco companies describe academic research into the health effects of smoking as the product of an anti-smoking industry.
The use of fake experts	These are individuals who purport to be experts in a particular area but whose views are entirely inconsistent with established knowledge. For example, economic rationalists will claim it is part of a natural cycle and cherry pick experts to espouse this view. A related strategy is the marginalisation of real experts, in some cases through an alliance between industry and government. For example, ExxonMobil successfully opposed the reappointment by the US Government of the chair of the Intergovernmental Panel on Climate Change.
Selectivity	Drawing on isolated papers that challenge the dominant consensus or highlighting the flaws in the weakest papers among those that support it as a means of discrediting the entire field.
The Creation of impossible expectations of what research can deliver	For example, those denying the reality of climate change point to the absence of accurate temperature records from before the invention of the thermometer, or the use of the intrinsic uncertainty of mathematical models to reject them entirely as a means of understanding a phenomenon.

The use of misrepresentation and logical fallacies	These include the use of red herrings, or deliberate attempts to change the argument where the opposing argument is misrepresented to make it easier to refute.
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Economic

Ife and Tesoriero (2006) state that the globalisation of the economy, under the influence of neoclassical economics and the power of transnationals has impacts on local industries closing down, lost jobs, devastated communities and personal despair. The mechanics are justified by the rhetoric of economic rationalism – reducing deficits, increasing competitiveness, free trade, wealth creation, prosperity.

Advocates of the new right, neo-liberalists approach seem unable to acknowledge that what the experience of 200 years of capitalism has demonstrated when it comes to equality and equity for all. While the free market has led to advantages in competition and efficiencies, it fails to address human needs in equitable ways (Ife & Tesoriero, 2006). Rather, it tends to exacerbate rather than reduce social and economic inequalities, where values of economic growth and prosperity for a few far outweigh the value of universal access to health care, education, for all to share.

Kenny (2006) points out that one of the arguments in political philosophy is that freedom and equality are contradictory precepts. From the left, there is commitment to increasing equality, in terms of access to resources, information, opportunity and freedom. On the right, comes the view that equality undermines freedom, for example, any government that promotes equality must redistribute resources, this impinges on the freedom of those who have accumulated disproportionately greater resources by taking these resources away. Kenny goes on to state that Freedom is dependent on equality in access to resources; it requires the redistribution of resources based on the principle of social justice, so that people can have real choices in their lives. From this perspective, says Kenny (2006), the issue is a paradox rather than an irreconcilable contradiction.

The erosion of community and the increasing concentration of global economic power into the hands of a few have encouraged increasing individualism, particularly in western societies. Here, Ife and Tesoriero (2006) explain that value is placed on the individual and individual achievement, and failure to achieve is attributed to individual deficiencies.

Competition weakens social ties and tends to be exclusionary. Blaming the individual renders iniquitous structures invisible and encourages fear, hostility and suspicion towards those who deviate from the norm. Trust is eroded, replaced by mistrust and competition.

The wealthiest 20 per cent of households in Australia now account for 61 per cent of total household net worth, whereas the poorest 20 per cent account for just 1 per cent of the total. In recent decades the income share of the top 1 per cent has doubled, and the wealth share of the top 0.001 per cent has more than tripled. At the same time, poverty is increasing and many of those dependent upon government benefits, including the unemployment benefit, have fallen below the poverty line.

Growth in inequality of incomes and wealth leads to greater stratification of the community with adverse impacts on trust, self-image, and equality of opportunity for disadvantaged groups. This in turn has negative effects on health and social stability. There is growing evidence from the International Monetary fund, that increasing inequality impedes economic productivity and economic growth as well (Douglas, Friel, Denniss & Morawetz, 2014).

Douglas et al. (2014) argue that Australians need to engage in a national conversation about how inequity is impacting our lives, culture, economy and society in order to enact change. They make the point that politicians are not going to act while the community acts as a passive recipient. The report documents a roundtable event held at Parliament House in January 2014. Discussion points, drawing on the work of Marmot (2004), Sen (2009), Wilkinson and Pickett (2012) included:

- Australian Aspirations for the day;
- Social, political, economic and cultural consequences of inequality and the barriers to reform; and
- What kinds of factors will lead to electoral support for change.

From the roundtable the report states that economic growth will be of most benefit if it is inclusive, offering a high degree of equality of opportunity to all. It identifies the causes of growing inequality, the adverse effects of inequality and the benefits of intervening now to reduce inequalities. The report concludes by offering ten ways to advance fairness in

Australia. Global organisations, such as Oxfam, are also talking about the consequences of inequality on economic growth, with Oxfam reporting that chronic inequality stunts long term economic growth and makes it more difficult to reduce poverty (Oxfam 2014(b), p. 9). Similarly, the C20 (Civil Society 20) is a platform for dialogue between the political leaders of G20 countries and representatives of civil society organisations, headed by Tim Costello. They hope that through C20, civil society can have a say in the discussion shaping the global economy. The C20 website contains a number of position papers including climate and sustainability, in the lead up to a C20 Summit in June 2014. They pose the following points for discussion:

- Economic growth at any cost, and inclusive growth that narrows the gap between rich and poor, both within and between nations?
- Infrastructure programs which are just about roads, rail and buildings, and an agenda that also includes social infrastructure like health and caring services?
- A global economy reliant on fossil fuel subsidies, and one committed to tackling climate change and transitioning to sustainable energy sources?

Grudnoff (2013) argues that the mining boom has not been managed well and challenges the notion that the growth in the resource sector is in Australia's national interest. He reports on the impacts of the mining boom on rural exports, stating that the rural sector is heavily reliant on export earnings, in particular the food and agricultural crops, including the sugar, cotton, wheat, beef and veal sectors. Grudnoff (2013) reports that since the beginning of the mining boom Australia's rural sector has lost \$61.5 billion in export income, primarily due to the high Australian dollar. This includes \$18.9 billion in 2011-12 alone. He argues that the Australian economy needs to have many viable industries. The report only provides an economic analysis; it doesn't count the social and environmental impacts of any of these industries.

The Australia Institute recently released report 'Auditing the auditors: the people's Commission of Audit (Richardson, Deniss, Grudnoff, 2014) theorises that Tony Shepard's National Commission of Audit (NCA) is a deeply flawed document. The Australia Institute review provides an overview of what was absent from the NCA, and the implications on

taxation, superannuation and healthcare. Some of the key points raised in the report include:

- Questioning the narrow focus of the NCA report.
- Lack of evidence to support the premise that Australia has high levels of debt, taxes or public spending.
- Inconsistent information on population and demographic trends and issues.
- Questioning the NCA's lack of analysis of the efficiency and effectiveness of the Abbott Government's Direct Action Policy.
- Lack of analysis on privatisation and deregulation issues (leading to increased efficiency and lower costs to consumers).
- A narrow evidence base for claims made, reference list is short and self-referential.
- Questioning the ability for the Commissioner of Audit (Tony Shepard) to be independent given the Business Council of Australia (BCA) demanded an audit of the nation's finances be conducted while Tony Shepard was the President of BCA and the Commissioner of Audit's secretariat is staffed by Peter Crone, BCA's immediate former Chief Economist. There are no statements about their independence or declarations to their personal or organisational interests.

Social and Cultural

Sustainability also includes social justice, intergenerational justice; mental and physical wellbeing; social, economic and cultural transformation and the flourishing of the diversity of life (see CoA, 2005; Feng, 2012; Hunting & Tilbury, 2006; Lang, 2007; Stibbe & Luna, 2009; Tilbury & Wortman, 2004). As evidenced by the above discussion, the issues of social sustainability are inextricably linked to environmental, economic, global, political and cultural issues.

Ife and Tesoriero (2011) suggest that social systems and institutions, such as the family, the community, bureaucracies, educational institutions and voluntary organisations, need to be evaluated from the point of view of their sustainability.

Applying the principle of sustainability to social systems means that they must be evaluated not simply in terms of their immediate role and function but also in terms of their long term viability, their impact on other systems, the energy they extract from their environment and

their output. Ife and Tesoriero (2011) suggest that it can be seriously questioned whether many modern social systems, institutions and organisations can meet the criterion of sustainability. Aboriginal practitioners in community and health development suggest a holistic conception which could be useful in terms of analysis and evaluation frameworks:

Health is holistic, encompassing mental health and physical, cultural, and spiritual health. Land is central to well-being. This holistic concept does not merely refer to the 'whole body' but in fact is steeped in the harmonised interrelations which constitute cultural well-being. These inter-relating factors can be categorised largely as spiritual, environmental, ideological, political, social, economic, mental and physical (Swan & Raphael, 1995).

Fundamental to aspects of social justice and human rights is the notion of equity. For example take a look at consumption and exploitation issues through the story of stuff <http://storyofstuff.org/>. Intergenerational equity is often espoused in sustainability literature due to the implication of past and current policies and actions on future generations.

We also need to look into our past and redress the injustices of the past. Kimpton (2014) and other first nations health leaders argue (See for example, <http://nationalcongress.com.au/recognition/>) that constitutional recognition is the next step in developing a healthier nation. Recognising Indigenous Australians as the First Nations peoples will enrich the identity of the nation and make significant steps towards reconciling past injustices.

As outlined in the section on globalisation, a universal culture is emerging, propagated through increasingly global media, for example, television, music, food, drink, clothing, film, sport. It is increasingly difficult for communities to preserve their own unique culture. External influences can effectively break down local cultural traditions and often requires a deliberate community strategy if they are to be retained. At the global level there are a number of United Nations protections, including the Universal Declaration of Human Rights and the United Nations Declaration on the Rights of Indigenous Peoples and the International Convention on the Elimination of All Forms of Racial Discrimination. In

Australia, The Racial Discrimination Act 1975 (RDA) gave domestic effect to Australia's international obligations under the International Convention on the Elimination of All Forms of Racial Discrimination. Almost 20 years later, a number of new provisions were added to the RDA concerning racial vilification.

The National Congress of First Peoples (2014) submission to the Attorney-General on the Exposure Draft of the Freedom of Speech (Repeal of Section 18C) Bill 2014, Racial Discrimination Act 1975 (Cth), advise that these new provisions were in response to racial violence against both Aboriginal and Torres Strait Islander Peoples and ethnic groups in the late 1980s and early 1990s and three major inquiries, including the National Inquiry into Racist Violence, the Royal Commission into Aboriginal Deaths in Custody, and the Australian Law Reform Commission's Multiculturalism and the Law report, had demonstrated a need for, and made recommendations about, the introduction of racial vilification legislation.

The RDA is a key, if not foundational, law establishing Australia's identity as a nation upholding equality and tolerance within a diverse multicultural society. It is also a keystone for reconciliation in Australia between Aboriginal and Torres Strait Islander Peoples and the settler state. The current provisions in the RDA strike a careful balance between freedom of expression and freedom from racial vilification. Congress is concerned that a change to these provisions in the RDA would send a signal that racism is acceptable. Racist sentiments cannot be separated from or dissociated from racist behaviours. The actual harm caused by racial vilification should not be dismissed. The impacts of racism are significant, they matter, and racism is rightfully acknowledged as a determinant of health for first nations peoples globally (Kimpton, 2014; WHO, 2011). Recent research shows that experiences of racism and discrimination remain prevalent in Australia, through race-hate talk, race-based exclusion and physical attack (Dunn, Forrest, Babacan et al., 2011; Priest, Paradies, Gunthorpe et al., 2011). Similarly, there is evidence associating racism with poor outcomes in contemporary and historical contexts, via colonisation and oppression (Paradies, Harris, Anderson, 2008).

The Australian Reconciliation Barometer is a biennial national research study that measures the progress of reconciliation between Aboriginal and Torres Strait Islander and non-Indigenous Australians. For more information please see

<http://www.reconciliation.org.au/wp-content/uploads/2013/12/2012-Australian-Reconciliation-Barometer-Overview.pdf> .

Indeed, valuing first nation's cultures is critical to community development and sustainability. Quite aside from addressing issues of social justice and reconciliation, there is a great deal to be learnt about sustainability from Indigenous standpoints. Aboriginal and Torres Strait Islander communities hold and sustain cultural heritage assets of enormous importance to themselves, to the nation, and to world cultural heritage (Jenke, 2008).

Polistina (2009) is one in the literature that includes culture as the forth pillar of sustainability and recommends that an important skill for dealing with cultural diversity in their development of sustainability literacy is cultural competence. The role of the educator itself demands a high level of cultural literacy to ensure that education provides chances for critical reflection on culture from multiple perspectives, rather than being confined to one's own world view (For more information on cultural competence and cultural safety see AIDA, 2013; Dudgeon, Garvey & Pickett, 2000). Yunkaporta's (2009) eight Aboriginal ways of learning framework provides strategies for educators to incorporate both Aboriginal and Western approaches to education that values cultural diversity and builds cultural literacy. Such approaches to education emphasise the enhancement of self and community learning. It includes the process of being aware of yourself and others, education is underpinned by personal development and healing, professional practice, and enhancing skill and training (Dudgeon, Milroy & Walker, 2014).

Opportunities to encourage the embracing of cultural diversity in every day practice to help reinforce that it is an everyday part of living in a multicultural society. Further, seeing things from other people's daily lives can help increase students understandings of the similarities and differences between their own cultural background and that of other people (MacNaughton & Williams, 2009). Alternatively, racism increases children's sense of difference and vulnerability by devaluing their culture and making them feel unwelcome (Kidsmatter, 2009). Access to cultural activities provide opportunities for cultural exchange, social connectedness, co-operation, friendships and when children have things from their own culture on display it can help build a sense of belonging and of being valued (MacNaughton & Williams, 2009; see Appendix C - Aboriginal cultural heritage).

The Australian Government released a report in 2013 on the What Works Program, a community partnership model, in operation in Australian schools for over ten years. The report details, through case studies and the provision of resources, how schools can make systems changes aimed at supporting Aboriginal and Torres Strait Islander students and increasing sustained educational outcomes for Aboriginal and Torre Strait Islander students (CoA, 2013).

The beneficial relationships held between Indigenous people and country is encapsulated in sayings by Indigenous people such as 'healthy country, healthy people'. In 2011 the Australian Institute for Aboriginal and Torres Strait Islander Studies (AIATSIS) prepared a literature review which considers the benefits of caring for country. It begins by scoping what caring for country means within our intercultural society, and why connection with country is important. Consistent with Aboriginal and Torres Strait Islander worldview's of interconnectedness and holism, this review provides an insightful discussion of the influential literature on the benefits of caring for country. These benefits include:

- health and wellbeing benefits;
- cultural and socio-political benefits;
- economic benefits; and
- environmental benefits.

The discussion includes some of the barriers to achieving benefits, as well as anticipated and realised benefits of caring for country. Much of the innovation in this field is in the exploration of health and country, and the matching of economic and environmental goals (CoA, 2011).

Social Capital

Franklin (2011) states that there has been a loss of social resilience in rural communities, arguing that local community sustainability and local systems and processes that support and maintain individuals whose knowledges and identities together produce the social capital and cultural artefacts of communities of common purpose, deserves the attention of education providers and researchers. She implores researchers to identify and engage in the particular social capital of the local as education practitioners have been left ill-equipped to identify and address complex and often disconcerting issues, leaving rural young people

stranded and torn between two disparate and often oppositional sets of knowledges and values. Work undertaken by Nielsen et al. (2012) may provide insight to this issue. This study evaluated a teacher education subject called 'Education for sustainable development' and evaluated the subject for its ability to prepare pre-service teachers for their roles as environmental educators, using place based pedagogy and critical thinking to underpin the subject design.

Key to successful EFS initiatives is the ability to adapt frameworks to suit local needs and conditions at a pace congruent with the schools ability to implement individual action plans. The whole-school approach encourages all participants to play a role in determining the level of progress. This generates benefits related to increased control and self-determination, concepts central to health and social justice (Ife & Tesoriero, 2006). This is only possible with strong executive commitment, engagement and enthusiasm from all staff and students. Other success factors for sustainable schools include embracing an ecological approach, fostering transformative learning, an interest in facilitating a cultural change process for improved learning and action (Gough, 2004; Lang, 2007) distributed leadership, school leadership teams, student involvement in day to day EFS activities and integrating EFS ideas into school operations and across the curriculum and extensive links within their local community (Cutter-Mackenzie, 2010; Gough, 2004; Henderson & Tilbury, 2004; Jackson, 2008; Larri, 2006; MACER, 2006; Maller, 2009; Maller et al., 2005).

While the research base is small, the emerging EFS related research does indicate promise of positive outcomes in relation to social connectedness, lower levels of absenteeism and aggressive behaviour, improved communication skills and enhanced self-esteem (Block & Johnson, 2009; Cutter-Mackenzie, 2010; Gough, 2004; Jackson, 2008; Larri 2006; MACER, 2006; Maller 2005).

According to the AIHW (2009) social capital is an important influence in child development as strong connections between individuals promote a sense of belonging and provide access to support. This can be represented by the degree to which people feel they can access support from neighbours, friends and participate in community activities. Leonard (2013) concludes that AuSSI programs were characterised by the elements of genuine and lasting professional development initiatives as opposed to mandated training packages and

mandated professional development. The process whereby schools and communities worked on developing approaches to issues they genuinely cared about and were able to define and implement in their own terms in an effectively 'place-based' approach made them successful initiatives. The signs of strong social capital such as robust social networks, strong community based resources and commitment to respectful, reciprocal, trusting relationships (Baum, 2008; Putland et al., 2009) are reported as key successes in leading EFS schools. This seems to be benefiting students through increased sense of self, trust, connectedness and responsibility. These elements are all seen as important determinants of community mental wellbeing (Butterworth, 2000).

Partnerships and networks are key elements to successful sustainable schools. Robust social networks, strong community based resources and commitment to respectful, reciprocal, trusting relationships are strong signs of social capital. These are most common in communities where economic capacities and resources are more equally shared (Putland et al., 2009). For social capital to grow, people need to be able to regularly interact with one another which provide opportunities for trust to grow. Carnegie (2014) suggests that Australia should develop a new *Compulsory National Service*, whereby we can call upon each other as a means to increase civic engagement, trust and social cohesion we need for local communities to prosper (see ABC Lateline 17 June 2014 <http://www.abc.net.au/lateline/content/2014/s4027403.htm>).

Places with a strong sense of identity help to enhance community awareness and bonding, which in turn reinforces their place identity. At the same time, places with a strong identity make social cohesion easier. From this position, Uzzell et al. (2002) hypothesises that socially cohesive communities that have a strong sense of social and place identity will be more supportive of environmentally sustainable attitudes and behaviours compared with those communities in which cohesiveness and social and place identities are weaker.

Reports of increased social connectedness and cohesion in schools with EFS programs are recorded in numerous case studies (see for example, Block & Johnson 2009; CoA, 2011; Gould League, n.d.; Jackson 2008; Maller 2005). A schools ability to identify, mobilise and address issues of sustainability by cultivating and transferring knowledge, skills, systems and

resources that affect community and individual changes consistent with the AuSSI's framework is referred to as community capacity.

Vygotsky provided a collaborative framework where students or learners socially construct knowledge through talk and collaborative activity (Woodhead & Faulkner, 2008). Educating for sustainability through the Australian Capital Territory (ACT) Curriculum supports the use of experiential learning where students have the opportunity to participate in a range of hands on activities working with students they may not have otherwise worked with, parents, carers and other family members and other groups and schools. Further, the AuSSI in the ACT demonstrates that inquiry-based collaborative professional learning can and is happening in Australian schools (Leonard, 2013). This is congruent with Feng's (2012) paper on the interdisciplinary aspects of sustainability education, which highlights that a core feature of sustainability education curricula is the interdisciplinary framework of EFS. Feng clarifies out the distinctions in terminology as follows:

Disciplinarity	Shared language, tools institutions, rules and epistemological commitments. The boundaries and procedures established by disciplinary discourse communities are central to the legitimation of the knowledge produced by and within that community (Greckhamer et al., 2008 as cited in Feng 2012).
Multidisciplinarity	Studying simultaneously or in sequence more than one area of knowledge, without making connections between them or without collaborating as learners. Multidisciplinary teams tend to work on their work individually, coming together at the end to form a series of works, not necessarily synthesised (Feng, 2012).
Interdisciplinarity	Learners make links between individual disciplines and generate cooperation between themselves and others. Fosters a community of learning in connection with other disciplines (Feng, 2012).

For example, teachers tend to incorporate and link different programs together, as evidenced through the recent CarbonKids evaluation (Larri, 2010), one school stated:

Our vision of being a sustainable school is holistic – it is about personal, social and environmental responsibility. This permeates every aspect of school life for example we use restorative practices to promote personal and social sustainability. This means when there is a situation where there is student conflict we work through a process

of what happened and what has contributed to the conflict: then how to get resolution and avoid the conflict cycle. We are trying to link this sort of thinking with sustainability generally. Our approach is being conscious of CarbonKids and AuSSI across every part of the curriculum.

Similarly, Brown, Harris and Russell (2010), discuss sustainability issues in the context of 'wicked problems' that require transdisciplinary approach. Their book, 'Tackling wicked problems' offers 15 case studies which provide examples of how researchers have engaged with the opportunities and challenges of conducting transdisciplinary inquiries. In this approach, academic disciplines are combined with personal, local and strategic understanding and researchers are required to recognise multiple knowledge cultures, accept the inevitability of uncertainty, and clarify their own and others' ethical positions. In light of current professional learning models contained in the Australian Teacher Professional Development Framework, Leonard (2013) highlights the benefits of collaborative models of professional learning such as those associated with EFS practices rather than 'performative' reforms which seek to improve teacher practice by increasing external accountability, eg. The My School website.

International literature

A United Kingdom (UK) Sustainable Schools evaluation (Jackson, 2008) stated that successful programs are evidenced where sustainability is at the heart of the school ethos through a shared vision and is embedded throughout all school activities. Successful sustainable schools have an outward orientation and look to build relationships and to act beyond the school. Having close links with the local community produced important social benefits such as increased business for local businesses, increased fund raising potential, new partnerships, improved social relationships inside the school and between the school and community. Further, achieving energy and water efficiencies can lead to significant savings in resources, and active staff and student participation in these processes provide important learning and deeper understandings on sustainability. However a lack of capacity or resources to roll out sustainability projects is seen as a barrier to implementation (Jackson, 2008).

The obesity crisis is driving the growing momentum for 'greening' school grounds in the United States (Ozer, 2007). A US meta-analysis (Ozer, 2007) noted anecdotal evidence that school garden programs can enhance students learning in academic, social and health related domains and reports evidence of increased levels of ownership, connectedness and attachment in the school environment. Ozer (2007) identifies some of the challenges including reliance on donations, voluntary work and lack of continuity with school maintenance and advocates that such programs need to go beyond individual health and behaviour to environmental sustainability. Developing and sustaining capacity is crucial to these types of programs; like Jackson (2008) and others (eg. Lang, 2007 & Ozer, 2007) state, that long term commitment, ethos change and engaging family and community are essential.

In countries such as Sweden, France, Belgium and the Netherlands, major national initiatives have been taken to improve the condition of schoolyards as educational resources. Similar environmentally based initiatives are underway in Canada and the United States (Moore & Wong 1997). In Norway environmental education is being written into its national curriculum documents (starting at pre-school level) (Davis, 2009). However, comprehensive frameworks such as the AuSSI are relative newcomers. In New Zealand, the successful Enviroschools program is changing the way that students learn for the environment and their future (Henderson & Tilbury, 2004).

Faber, Taylor & Keo (2009) encourage schools to consider more natural elements and areas in schools yards such as trees, shrubs and vegetable gardens for students with concentration and attention difficulties. Including students in the design and construction of outdoor spaces strengthens potential benefits for schools. For example, a Swedish school engaged the students in a number of ways in designing its playground. This included physically re-creating a space in which they liked, the students described what they liked in their existing playground and what they would like to keep, and the design was integrated into school study subjects such as history and woodworking. The end product resulted in a process that energised the whole school community (James & Lahti, 2004). A Canadian study also found that when fully involved in the process students can acquire skills related to democracy, participation and citizenship (Dyment, 2005). A recent UK gardening in schools study (Passy, Morris & Reed, 2010) evidences outcomes such as increased

confidence, resilience and self-esteem; development of physical skills; sense of responsibility, positive behaviour and improvements in emotional wellbeing.

Sustainability in Rural Schools

White and Reid (2008) highlight that rural schools, are often at the sharp end of economic downturns. In addition to the loss of teaching staff as school numbers decline, rural schools face daily an ever increasing range of social and welfare issues with which many teachers find themselves ill-equipped to deal. They suggest that schools are often the social barometer of community wellbeing. In these periods, rural communities need additional support to maintain sense of identity, sense of purpose, sense of place. Rural communities are more likely to remain sustainable when community members are able to discern issues, and lead the community in identifying creative solutions and achieve successful outcomes (Bartholomaeus, 2013b; Ife & Tesoriero 2006).

Franklin (2011) states that beyond the acknowledgement by ACARA about the changing nature of educational goals and the acknowledgement that the Australian Curriculum should be implemented to reflect the local context and take into account the individuals family, culture and community background (ACARA, 2011) there has been no recognition of the possible need to frame a policy or direction to address the educational issues that are outstanding in rural Australia. Franklin goes onto argue that by ACARA adopting the global definition of sustainability outlined in the Brundtland Report (1987), it causes tensions between local rural industry practices and communities and broader perceptions about the need to sustain global resources in the face of economic exploitation (Franklin, 2011).

Green and Reid (2004) point out that through the distinctive geography and demography of Australia, the land mass, industries and services state that the concept of sustainability has particular resonance for rural-regional Australia. They highlight that as the emphasis of Australian life is increasingly focused on urban centres, rural and regional Australia is increasingly marginalised and pose a question about what role teacher education can play in rural-regional sustainability. They surmise that what happens inside schools and classrooms need to become more closely aligned with the outside, with more explicit attention given to the contextualisation and exchange. It is more than locational; it should incorporate an eco-

social justice agenda for Australian education. That is, the relationship between the historical relationship between culture and ecology and the challenges globalisation brings.

Kemmis and Mutton (2012) undertook a study in the Murray-Darling Basin to investigate educational practice in ten EFS initiatives to characterise exemplary practice in school and community EFS. They explored the notion that EFS can be regarded as successful when and if it produces changes in peoples knowledge and through to their actions. Kemmis and Mutton (2013) suggest that EFS, especially in place-based forms, offers a sense of urgency and purpose to education. For example Landcare and other types of community action, recycling, restoring landscapes etc., and the education process being involved with such an event is far more than incidental learning. They argue that EFS is much more than knowledge into action, it has the potential to transforms peoples social, economic and cultural practices sayings, doings and relating characteristics of more sustainable ways of living.

Researchers such as Boon (2011); Franklin (2011); Green and Reid (2004); Roberts and Green (2013); Somerville and Green (2014); White (2006) highlight a range of educational issues in which rural communities engage that have an impact on EFS in schools. They are far ranging and include issues of recruitment and retention, pre-teacher placements, professional teaching experiences, rural and urban comparative outcomes, equity and social justice. White and Reid (2008) suggest that teacher education providers can more successfully prepare teachers for rural settings if they understand and enact teacher education curriculum with a consciousness of and attention to the concept of place. Franklin (2011) suggests that to be 'rural' is for rural people much more than 'not urban', and rural is not simply distant or remote in relation to urban places. Sustainability, Franklin (2011) suggests, as with rural, means one thing to rural people in a particular rural setting, and another to the people of the city who develop policies and practices in education, conservation or otherwise. Similarly, Roberts and Green (2013) suggest that rural and urban schools have been simultaneously compared through the same lens which illuminates how space and place are ill-considered notions in Australian educational policy.

White's work in the pre-service and teacher education highlight the gap in rural pre-service training placements and provide strong arguments for the need to consider placements in the context of the placement, through rural and regional lens. White's research indicates

there are gaps in capacity and knowledge creating opportunities to develop a framework for rural and regional teaching opportunities as a distinct from urban centres (see Reid et al., 2010; White, 2006; White et al., 2011; White and Kline 2012; White and Reid 2008). Kinash and Hoffman (2009) undertook a literature review searching rural and primary school and 92% of the 100 articles pathologised rural primary schooling. Implicit in this literature, Kinash and Hoffman (2009), is the notion that families enrol their children out of necessity rather than informed choice, low socio-economic status is a dominant topic of discussion as are poorer health outcomes. A clear challenge to researchers to consider re-framing the discourse on and about rural school communities.

A schools ability to identify, mobilise and address issues of sustainability by cultivating and transferring knowledge, skills, systems and resources that affect community and individual changes consistent with the AuSSI's framework is referred to as community capacity. O'Neill (2013) suggests that the sustainability of schools in rural areas relies on the confidence and support by the local community and this confidence is dependent upon the perception that the school is a successful one. It follows that a critical component of reflective practice should be to maintain vigilance on the language we use and develop an awareness of its consequence. Who says what when, are issues of power. In this context, power operates at every level of society, and can be positive and productive or negative and counterproductive (Drewery & Winslade, 1997).

For example, the education system has a history of rendering Aboriginal stories invisible, passive, tokenistic or controversial. Gorringer et al., (2011) refer to Chris Sara's research regarding perceptions of Aboriginal students similarly laden with negative language; for example, 'lazy', 'under achievers', 'cheeky' and 'defiant'. This language was echoed in the words used by Aboriginal people to describe themselves, and noted that this underpinned damaging and self-limiting behaviours:

The greatest tragedy is that young black kids make choices about these perceptions as well. Too many aspire to be these negative things thinking that they are supporting their Aboriginal identity. So those who do well get picked on by other kids who say 'you're a coconut' etc. These kids think that the negative stereotype is a cultural identity but of course it's not. At Cherbourg I was determined

to smash this perception of Aboriginal identity, but we had to replace it with something — which brought us to the ‘Strong and Smart’ philosophy (p. 12).

Ironically, these concepts are now embedded within the negative stereotype, leading to the derogatory description of some people as less ‘Aboriginal’, less ‘real’ or less ‘valid’ than others (Gorringe et al., 2011). Essentially, dominant discourse has created the impression that Aboriginal communities (and by association individuals) are terminal places outside of rational modern Australia (Phipps & Slater, 2010). Instead of being value neutral, the use of this type of terminology frames Aboriginal identity in a negative way and acts, therefore, as a component of negative stereotyping (Gorringe et al., 2011). It is important to remember that Aboriginal people are as ‘modern’ as any other people and all living in the present (Muk Muk Burke, 2009) and that Aboriginal peoples have multiple knowledges relevant in a globalised world, continually adapting and learning from other knowledge systems (Nash, 2009).

Thus, it is worthy to consider that no-one has complete power over themselves or their environment as we live in social contexts where many different discourses operate (Drewery & Winslade, 1997), as White and Epston (1990) theorise about Foucault’s ideas on power and truth stating that:

The notion of a power that is negative in its effects contributes to a theory of repression, while the notion of power that is positive in its effects leads to a theory about its role in ‘making up’ persons’ lives. And when discussing ‘truths’ Foucault is subscribing not to the belief that there exist objective or intrinsic facts about the nature of persons but instead to constructed ideas that are accorded a truth status. These ‘truths’ are ‘normalizing’ in the sense that they construct norms around which persons are incited to shape or constitute their lives (p. 19).

Notions of Place

A sense of place describes an attachment to a place that is an important part of a person’s sense of identity and creates a feeling of belonging. An outdoor experience in the natural

environment can foster personal discoveries and assist a person in becoming grounded and secure in their sense of self and in creating a sense of belonging and identity, which in turn improves mental health (Bird, 2007; Wright & Tolan, 2009). Instilling a sense of place means restoring local culture and connections with local places and communities, reweaving the local ecology into the fabric of the economy and life patterns while diminishing our consumption patterns (Ife & Tesoriero, 2006; Orr, 2004).

Place based pedagogies put the local and the known in the centre of the education process. They allow teachers to structure learning opportunities that are framed as meaningful and relevant to their students because they are connected to their own places, to people and to the popular cultures and concerns that engage them (Comber, Reid & Nixon, 2007 as cited in White & Reid 2008). Place conscious pedagogies are more interested in developing and projecting awareness outward toward places (Gruenewald, 2003) beyond the local connecting with the global. Bartholomaeus' (2013a) article on sustainable rural education explains that placed based education can provide opportunities for learning the skills and knowledge that will enable students to understand and apply knowledge that is more distant from their lives and adopt it in the context which matches local environments.

Bartholomaeus goes onto discuss Smith's (2002) five dimensions of working with the local place: social, cultural, economic, political and natural/ecological. Concepts of decolonisation are also discussed as a way of renewing traditions and cultural patterns of local communities. Bartholomaeus (2013a & 2013b) showcases Aboriginal and Torres Strait Islander communities, as example of place based learning in a local cultural context, inspired by community. Various published books have been written by children with interaction from adults in elders in a number of Aboriginal and Torres Strait Islander communities which strengthen Aboriginal and Torres Strait Islander cultural knowledge as it is passed on to the next generation in the school setting. For example, the Papunya school book of country and history published in 2001. These types of programs have the potential to be transformative as knowing about your own history and culture provides a sense of belonging, it provides connections to the knowledge of ancestors, and it elucidates cultural ways of being and doing (SNAICC 2005). It allows empowerment, for a person to move on in life in a positive way, and increases a sense of well-being and inter-connectedness (Brough et al., 2006;

Wright & Tolan, 2009). All these factors contribute to building a strong sense of self and identity.

Wattchow and Brown (2011) suggest that many people may experience a sense of placelessness in the high mobility of present times where 'globalising' agendas are not conducive to gaining a sense of place in a constantly changing world. As educators they see it vitally important for outdoor educators to understand and foster a sense of connection with the places where they live, learn and teach. Their book, *A Pedagogy of Place* discusses why these issues are so important in the Australian and New Zealand context through case studies and discussion, highlighting that in post-colonial societies like ours, there is a lot to discuss that relate to land, identity and community.

Partnerships engender support for the development and wellbeing of young people and their families and can provide opportunities for young Australian's to connect with their communities, participate in civic life and develop a sense of responsible citizenship. In particular the development of partnerships between schools and Indigenous communities, based on cross-cultural respect, is the main way of achieving highly effective schooling for Indigenous students (MCEETYA, 2009).

Rural Regional Sustainability

Rather than focusing on rural sustainability, Green (2010) suggests that the focus needs to be on rural-regional sustainability. This concept draws on Tomaney's (2008 as cited in Green, 2010) concept of regionality and regions, and Lemke's (1995 as cited in Green, 2010) interdisciplinary thinking in eco-social sustainability. Regions are "historically contingent social constructions rather than physical entities" (p. 7). Regionality then links with Lemke's (1995 as cited in Green, 2010) eco-social dynamics, as the survival of everything depends on the health and wellbeing of the environment. Building on Lemke's (1995 as cited in Green, 2010) argument that it is necessary to bring together different fields of research, Green (2010) indicates that there is a need to work across fields in systematic ways to consider rural education, environmental education and Indigenous education and look beyond schooling as a distinctive field. Within this, notions of spaces and places need to be supplemented by notions of scale and region. This involves "thinking relationally, and trialectically, with space, place and scale brought together in a single dynamic framework"

(Green, 2010, p. 7). Other areas such as health and professional practice fields that focus on rural and regional sustainability in relation to policy and professional education also need to be brought together, something which would support inter agency initiatives in rural circumstances. In particular, there needs to be a “ greater appreciation of and engagement in the educational practice of rural regional sustainability, at all levels and in every sphere of lifelong learning-including that of formal schooling, although by no means limited to it and indeed as a life-long investment in the Lifeworld itself” (Green, 2010, p. 10).

Like Green (2010), Hasley (2005) also argues that rural education needs to work with other services in relation to sustainability to regenerate rural education. In particular, there are five main issues where rural education can connect with others and create new policy to promote sustainability and the role of rural education. These are food security, energy, fresh water supply, declining natural environment, territorial security. To do this, he proposes that through policy changes, city students should access rural schools and experiences to increase the enrolment numbers of rural schools and the possibility of youth taking up careers in rural areas. Crucially, this involves acknowledging that education in rural locations is just as good as education in city areas by acknowledging and celebrating differences.

White & Reid (2008) indicate that sustainability and teacher education are connected, as teacher education can prepare graduates to teach in rural areas, which will support healthy rural communities. This can be done by helping teachers to understand and consider place, as this helps them to address the communities’ and schools’ needs, resist rural decline, help sustain rural communities, and encourage teachers to be engaged with their communities.

Green & Reid (2004) argue that teacher education is dominated by metrocentric perspectives, and that preparing teachers for rural settings needs to be considered as part of the larger project of teacher education, not as a supplementary education program. In particular, they argue that teacher education needs to be a “situated practice” (p. 255).

Building on this, White & Reid (2008) suggest that “Place conscious approaches bring a particular sort of curriculum, and as teachers come to know about a particular rural place, they are developing knowledge, sensitivities, awareness, skills, attitudes, and abilities that will allow them to feel more at home and more powerful in rural communities” (p. 6).

Reid et al. (2010) propose a model of rural social space that brings together social, economic and environmental dimensions of rural-regional sustainability that works with rural regional

sustainability. This model aims to help teachers understand the rural and prepare teachers for working in rural communities and aims to improve teacher education for teachers who will work in rural areas. “Rural social space is the set of relationships, actions, and meanings that are produced in and through the daily practice of people in a particular place and time” (p. 269). It links demographics, economics and geography. This model also incorporates the TBL considerations of sustainability. Understanding of these factors helps teachers move beyond the deficit view of rural schooling, and improves teachers practice in place, something which is essential for both economic and social sustainability of rural areas and of Australia.

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Section Three: Sustainability in Curriculum and Policy

The following section provides an overview of how sustainability appears in each jurisdictional curriculum documents and policies in the states and territories of the Murray-Darling Basin.

Curriculum Documents

Of those curriculum documents that provided a definition of sustainability, all were consistent with sustainability being about maintaining the needs of the current generation while ensuring the needs of the future generation are also able to be met. An example is that of the National Curriculum, where sustainability is defined as follows:

Sustainability addresses the ongoing capacity of Earth to maintain all life. Sustainable patterns of living meet the needs of the present without compromising the ability of future generations to meet their needs. Actions to improve sustainability are both individual and collective endeavours shared across local and global communities. They necessitate a renewed and balanced approach to the way humans interact with each other and the environment (Australian Curriculum, Assessment and Reporting Authority, <http://www.australiancurriculum.edu.au/crosscurriculumpriorities/sustainability>, 2014).

See **Appendix E** for definitions of sustainability from each educational jurisdiction.

In the various jurisdictions, except for NSW Geography K-10, no specific area of sustainability is focused on or prioritised over the other, suggesting a TBL approach with references to all areas of sustainability-particularly in the National Curriculum. However, when examining how sustainability is covered in the curriculums, there is a bias towards sustainability being seen in predominantly environmental terms. So while the official definitions suggest a non-specific, or TBL identification of sustainability, the implied definition of sustainability is one of environmental issues and focuses. This is evident in the context sustainability is taught, the subjects it is taught in, and the different elements of

sustainability that are taught and focused on. For example in the majority of instances where sustainability is mentioned in the curriculums in each state and territory and nationally, it is either referenced directly as environmental/ecological sustainability, or usually where it isn't only an environmental reference, other areas are referenced closely to environmental issues. While it does occur, it is rare to see references to sustainability out of the context of environmental. This suggests there is at least some small recognition of a TBL approach, however, with the focus predominantly on environmental, this can be seen as an 'add on' - the focus is small, so the message is lost within the largely environmental focus.

This is exemplified in Table Six and Table Seven below, where details of the number of times sustainability appears in the core subjects of the curriculum are identified. **Appendix F** contains a detailed break-down of where sustainability is can be located in each jurisdictional curriculum by subject areas. The 'find' function was used to explore where sustainability appeared in the curriculum documents, and the types of examples used. This is throughout the whole document, including introductions, however, those that have been developed with the national curriculum references to sustainability as a cross curricular priority have been excluded. So for example, in the NSW syllabus, English K-10 for the National Curriculum, on p. 28, sustainability is referenced as a cross curricular priority and what this means (<http://syllabus.bos.nsw.edu.au/download/>). Examples such as this have been excluded. The uses of sustainability were categorised into environmental only references, environmental and other areas, or just other areas (see **Appendix F** for a breakdown of this by subject area).

The 'number of times environmental only' refers to how many times sustainability is only referenced in terms of the environment. This includes references to resource based sustainability-such as: "They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems" (Australian Curriculum year 7 Science Achievement Standard, ACARA, 1014, <http://www.australiancurriculum.edu.au/science/curriculum/f-10?layout=1>).

The 'number of times other & environmental' refers to where sustainability is referenced in environmental terms as well as other aspects of sustainability. When this occurs, it is usually environmental and social that are referenced together. For example, in the NSW English K-

10 curriculum, it is identified that: “In each year students must study examples of: texts that include aspects of environmental and social sustainability” (content and texts required for early stage 1 to stage 3, p. 24; content and texts required for stage 4, p. 25; content and texts required for stage 5, p. 26; content required for years 7-10 life skills, p. 159, <http://syllabus.bos.nsw.edu.au/download/>). This category also includes those which are predominantly environmental only, but could be seen to include other areas. Two examples of this are where environmental sustainability is the focus, but it references using Indigenous knowledge’s to maintain environmental sustainability; and, where environmental sustainability is in the interests of maintaining life on earth, however, the focus is mainly environmental factors (see for example South Australia Curriculum Science for examples of both, http://www.sacsa.sa.edu.au/index_fsrm.asp?t=LA.)

The ‘number of times other only’ refers to where sustainability is either referenced in a non-specific way, with no indicator of a specific area of sustainability, such as: “Respond to and compose texts- formulate, develop and express their own ideas and beliefs creatively, thoughtfully, positively and confidently on issues such as sustainable patterns of living” (NSW K-10 English Stage Five: Objective C Outcome 5, <http://syllabus.bos.nsw.edu.au/download/>, p. 143), or, when it is referenced in relation to areas other than environmental, such as social, cultural or economic sustainability. An example of this is: “Students are introduced to the concept of resources and their management, and begin to understand how resource use reflects community interdependence and economic sustainability. They begin to understand how local resources are used to make products which meet local people's needs and the needs of people in other places. They also begin to understand that resources from other places may be used to make products locally to meet their needs” (The Humanities Level 1 Learning focus AusVELS [Victoria] Curriculum, <http://ausvels.vcaa.vic.edu.au/English/Overview/English-across-Foundation-to-Level-10>).

Additionally, as this is based on counting the number of times the word ‘sustainability’ is used, there are times when it is used in close relationship to each other-for example, in the National Curriculum for Geography, in one Year 4 level descriptor, it appears as follows: “*The Earth’s environment sustains all life* focuses on developing students’ understanding of sustainability which is about the ongoing capacity of the environment to sustain human

life and wellbeing. Students recognise that people have different views on how sustainability can be achieved. They learn that sustainability means more than the careful use of resources and the safe management of waste, and they develop their understanding of the concept by exploring some of the other functions of the environment that support their lives and the lives of other living things” (<http://www.australiancurriculum.edu.au/humanities-and-social-sciences/geography/curriculum/f-10?layout=1>). This has been noted in the table.

Table Six: Sustainability in the Curriculum

Jurisdiction	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only
National	43	14 + 2 together	11 + 6 together	23* note: the high number here is from 21 in technology
NSW	108	71 +2 together	11	24
QLD	23	8	7	8
VIC	34	17 +2 together	8	7
SA	213	97	67	39
ACT	ACT has a whole ELA dedicated to environmental sustainability: ELA 20: “The student acts for an environmentally sustainable future” TBL factors are considered in the context of other ELA’s however, the emphasis is small and not specifically stated as ‘sustainability’.			

Table Seven: Examples of the use of sustainability in the contexts described in Table Six

Jurisdiction	Environmental only	Environmental and Other	Other only
National	Science: Year Seven Achievement Standard: They <u>analyse</u> how the sustainable use of resources depends on the way they are formed and cycle through Earth systems.	Geography: Year 4 Level Description: <i>The Earth's <u>environment</u> sustains all life</i> focuses on developing students' understanding of <u>sustainability</u> which is about the ongoing capacity of the <u>environment</u> to sustain human life and wellbeing. Students recognise that people have different views on how <u>sustainability</u> can be achieved. They learn that <u>sustainability</u> means more than the careful use of resources and the safe management of waste, and they develop their understanding of the concept by exploring some of the other functions of the <u>environment</u> that support their lives and the lives of other living things.	Civics and Citizenship: Year 10 Content Descriptions- Government and Democracy: The challenges to and ways of sustaining a resilient <u>democracy</u> and cohesive society(ACHCK094)
NSW	Science: Stage One: Earth and Space: identify some actions which could be taken to care for and use water sustainably, eg. turning off dripping taps and/or taking shorter showers	Aboriginal Studies: Students learn to: analyse the contribution of Aboriginal technologies to tourism, trade and the Australian economy through avenues such as ecotourism and environmentally sustainable industry; use electronic communication including the internet to find information	English: Stage Five: Objective C Outcome 5: Respond to and compose texts - formulate, develop and express their own ideas and beliefs creatively, thoughtfully, positively and confidently on issues such as sustainable patterns of living
QLD	Home Economics LSSG & K&U examples: <ul style="list-style-type: none"> Sustainable energy solutions, inductive 	I C&T Assessment Investigative analysis involves research assignments, reports or system evaluations that:	Design and Technology Year Eight-Ten: Year 8 & 9 Processes and Techniques: Investigate design situation requirements, considering concepts

	cooking	analyse sustainable practice, ethical principles and their impacts on society, culture, the economy, and the environment	such as ergonomics, safety, sustainability and production.
VIC	<i>Geography: Level 6 learning Focus:</i> At Level 6, students identify and describe Australia's significant natural processes. They describe the reaction of people to these processes including the management of natural disasters. They compare the various ways humans have used and affected the Australian environment. Students recommend ways of protecting environmentally sensitive areas in a sustainable way.	<i>Economics: Level 9 & 10:</i> Students investigate the relationship between economic growth, ecological sustainability and the standard of living, and explore what it means to be an ethical producer and consumer. They begin to reflect on the role of values in the economic decision making of producers, consumers and governments.	<i>Civics and Citizenship: Level ten standards:</i> They explain the development of a multicultural society and the values necessary to sustain it.
SA	<i>Society and the Environment:</i> Ecological sustainability such as: environmental stewardship and conservation; a commitment to maintaining biological diversity; and a recognition of the intrinsic value of the natural environment. These values contribute to learners' understanding of how ecological sustainability can be achieved, in ways that redress environmental damage caused by past and present generations and safeguard the inheritance of future generations.	Science: Senior Years: Strand Earth and Space 5.1 Researches and analyses contemporary theories about geological features, such as plate tectonics, and investigates their effects on sustaining life on earth.	<i>Society and the Environment: Middle years: strand time continuity and change:</i> appraises how further change could take into account sustainability and fairness for all.
ACT	<ul style="list-style-type: none"> • 20.LC.3 some effects of human action on natural environments (e.g. land clearing, air and water pollution) 		

The subjects which sustainability appears are overwhelmingly the humanities, in particular geography, or HSIE (or variations in that subject name). It also appears in the sciences, with this usually being in relation to using/managing earth's resources, as well as environmental aspects of the earth. For example: A year seven achievement strand in the National Curriculum Science is: "They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems"

(<http://www.australiancurriculum.edu.au/science/curriculum/f-10?layout=1>). The location of these examples further suggests it is an environmentally focused issue. In specific subject areas such as economics and business, and the arts, HPE, other elements such as cultural, social or economic sustainability are favoured. This includes examples such as: "The contribution of drama and theatre to enriching and sustaining cultures and societies" (NSW syllabus 7-10 Drama Values and Attitudes). Technology in particular, had non-specific references to sustainability. For example: "Critically analyse factors, including social, ethical and sustainability considerations, that impact on designed solutions for global preferred futures and the complex design and production processes involved" (ACTDEK040 Year 9 & 10 National curriculum, ACARA, 2014,

<http://www.australiancurriculum.edu.au/technologies/technologies-across-foundation-to-year-10>). This suggests a separated, context specific view of sustainability-rather than an interrelated TBL approach.

Cross Curricular Priorities and the National Curriculum

Each cross curricular priority has a set of organising ideas that are embedded throughout the curriculum content descriptors and elaborations where appropriate. These reflect “the essential knowledge, understandings and skills for the priority” (ACARA, 2014, <http://www.australiancurriculum.edu.au/CrossCurriculumPriorities/Sustainability>).

For sustainability, the majority of these reflect a TBL approach to sustainability, consistent with the definition of sustainability used in the curriculum document. For example:

- Systems: OI. 3 Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems.
- World Views: OI. 4 World views that recognise the dependence of living things on healthy ecosystems, and value diversity and social justice are essential for achieving sustainability.
- Futures: OI. 6 The sustainability of ecological, social and economic systems is achieved through informed individual and community action that values local and global equity and fairness across generations into the future.

However, some specifically prioritise environmental sustainability, or environmental sustainability with links to other areas of sustainability. For example:

- Systems: OI.2 All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival.
- Futures: OI. 7 Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments.
- Futures: OI.9 Sustainable futures result from actions designed to preserve and/or restore the quality and uniqueness of environments.

(ACARA, 2014, <http://www.australiancurriculum.edu.au/crosscurriculumpriorities>)

Examining where these were embedded in the curriculum as cross curricular priorities, it was predominantly environmental in the majority of core subjects. In some specific subject areas such as economics and business, the arts, HPE, other elements such as cultural, social

or economic sustainability are favoured. This suggests a separated, context specific view of sustainability, rather than in interrelated TBL approach. For example:

- Mathematics Year 10 / Statistics and Probability / Data representation and interpretation, ACMSP252

The content descriptor is: Investigate and describe bivariate numerical data where the independent variable is time.

The elaboration is: investigating biodiversity changes in Australia since European occupation

- Science Year 1 / Science as a Human Endeavour / Use and influence of science, ACSHE022

The content descriptor includes: identifying ways that science knowledge is used in the care of the local environment such as animal habitats, and suggesting changes to parks and gardens to better meet the needs of native animals

- Geography Year 8 / Geographical Knowledge and Understanding

The content descriptor is: The ways of protecting significant landscapes ACHGK052

- The Arts / Visual Arts / Years 7 and 8

The content descriptor is: Identify and connect specific features and purposes of visual artworks from contemporary and past times to explore viewpoints and enrich their art-making, starting with Australian artworks including those of Aboriginal and Torres Strait Islander Peoples ACAVAR124

- Humanities and Social Sciences / Year 5 to Year 10 curriculum / Year 5 / Economics and Business Knowledge and Understanding

The content descriptor is: The difference between needs and wants and why choices need to be made about how limited resources are used ACHEK001

The above examples are from the cross curricular priorities in version 7.0. On 25/8/2014 version 7.1 was released and the cross curricular priorities in English, Mathematics, Science and History were revised. In both English and Mathematics, sustainability no longer appears as a cross curricular priority (as previously referenced with the sustainability symbol) In

History, it is no longer present in primary school, and in high school, it is predominantly environmental, with some reference to people (see the examples in Table Eight below). In science, it is all environmentally focused (see examples in Table Eight below). The changing nature of the use of sustainability as a cross curricular priority suggests there is no consistent way it is decided on, and is based on interpretations of those people designing the curriculum.

Table Eight: Examples of Sustainability as a Cross Curricular Priority, Australian Curriculum Version 7.1

Australian Curriculum Version 7.1	
Subject Area	Example of teaching sustainability as a cross curricular priority
Science	<p>Always in relation to environment or resources</p> <ul style="list-style-type: none"> • Eg: Science / Year 2 / Science as a Human Endeavour / Use and influence of science / ACSHE035 The content descriptor is: People use science in their daily lives, including when caring for their environment and living things • Eg: Science / Year 9 / Science Understanding / Biological sciences / ACSSU176 The content descriptor is: Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems
History	<p>It is linked predominantly to environmental and international issues of sustainability. The environmental can then be linked to social/cultural in some places, and there is one example of social only (see ACDSEH076).</p> <ul style="list-style-type: none"> • Eg: Humanities and Social Sciences / History / Year 8 / Historical Knowledge and Understanding / The Asia-Pacific world / Japan under the Shoguns' (c.794 – 1867) / ACDSEH064 The content descriptor is: The use of environmental resources in Shogunate Japan and the forestry and land use policies of the Tokugawa Shogunate • Eg: Humanities and Social Sciences / History / Year 8 / Historical Knowledge and Understanding / Expanding contacts / The Spanish conquest of the Americas (c.1492 – c.1572) / ACDSEH076 The content descriptor is: The longer-term effects of colonisation, including slavery, population changes and lack of control over resources <p>The elaboration is: explaining the longer-term effects of conquest and colonisation on the Indigenous populations of the Americas (for example the unequal distribution of land and wealth, and political inequality)</p>

Sustainability in Policy

The Environmental focus of sustainability is also evident in the policies of each Government sector. This was in terms of school specific policies, Department wide policies as well as whole of Government Policies. The policies that were analysed, and a breakdown of how they define sustainability and its implied meaning can be found in **Appendix G**.

At a Government Level, ACT, NSW and SA have a general policy incorporating sustainability that related to any government department. Of these, there were mixed focuses. ACT was TBL focused, and incorporated this throughout the plan, without prioritising one area over any other. It explicitly acknowledges a TBL approach, and then focuses on each area throughout the policy. For example, it states: “The Government has adopted a triple bottom line approach to sustainability, recognising the interdependence of social, economic and environmental well-being, but also acknowledging that decision-making will often involve trade-offs between the three” (ACT Government, 2009, p. 3). SA incorporated sustainability goals into its strategic plan. Within this, while there was an acknowledgement of sustainability in all areas, environmental sustainability was the main area of focus, with most attention given to this as an area of itself. For example, one area of vision was identified as “we look after our natural environment” (Government of South Australia, 2011, p. 48) with this incorporating many aspects of environmental sustainability. The NSW Government sustainability plan was entirely environmentally focused, relating to reducing consumption and use of resources and protecting the environment.

At a Departmental level, NSW, Vic and QLD, each had a departmental policy on sustainability. These policies related not just to school settings, but usually anywhere that education for sustainability was relevant, and anything that came under the banner of that department/directorate. All these policies in each state were environmentally focused. The NSW policy demonstrated a small recognition that environmental sustainability impacted upon other areas of sustainability (see for example the diagram on page 12 of the policy), and while Vic’s definition of sustainability; “Today sustainability is a concept which involves managing all aspects of the world we live in – economy, community and environment – to generate a secured future” (Department of Education and Early Childhood Development

Victoria, 2009, p.3) recognised other areas of sustainability, the policy generally focuses on environmental sustainability.

At a school level, Schools as part of the Australian Sustainable Schools Initiative (ASSI) are expected to have a School Environmental Sustainability Policy and NSW Department then has a policy guide for schools on how to create this. The focus in the ASSI is environmental sustainability. ACT and QLD also have specific school level policies. ACT used the “Educating for a Sustainable Future: A National Environmental Education Statement for Australian Schools” (Australian Government Department of Environment and Heritage, 2005) to inform sustainability education in its schools, which within the policy implies an environmental perspective. This is in contrast to the ACT Government’s policy which is TBL focused. QLD’s school level policy, ‘Statement on Sustainability for all Queensland Schools “Enough for all Forever”’ (QLD Government Department of Education, Training and the Arts, 2008), is TBL focused, in contrast to the Departmental policy, which is mostly environmentally focused.

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<http://education.qld.gov.au/publication/production/reports/pdfs/statement-on-sustainability-all-qld-schools-enough-for-all-forever.pdf>

Links to each Curriculum

Jurisdiction	Link
National Curriculum V 6.0	http://www.australiancurriculum.edu.au/
New South Wales Curriculum	Subjects developed for the National Curriculum: http://syllabus.bos.nsw.edu.au/ Secondary Subjects: http://www.boardofstudies.nsw.edu.au/syllabus_sc/ Primary Subjects: http://www.boardofstudies.nsw.edu.au/k-6/
Victorian Curriculum	http://ausvels.vcaa.vic.edu.au/
Queensland Curriculum	https://www.qcaa.qld.edu.au/20735.html
ACT Curriculum	http://activated.act.edu.au/ectl/framework.htm
South Australian Curriculum	http://www.sacsa.sa.edu.au/index_fsrc.asp?t=HOME

Appendix A: Australian Sustainable Schools Initiative

The AuSSI provides a framework for education for sustainability in schools and complements existing school programs. The AuSSI is a partnership between the Australian Government and the States and Territories which entails a 'whole of school, action learning approach to sustainability which is generating measurable social, educational, financial and environmental outcomes' (CoA, 2009, p.11).

The AuSSI integrates existing environmental education initiatives into a holistic program with measurable environmental, economic, social and curriculum outcomes. The initiative implements efficiencies in a schools management of resources (e.g. energy, waste, water, products and materials) and the management of school grounds (e.g. biodiversity, landscape design, soil, noise, and human and vehicular traffic) and integrates this action based approach into the existing curriculum and daily running of the school (CoA, 2005).

Through the provision of resources and hands on support the AuSSI provides a framework to encourage schools to develop a culture of sustainability at their own pace. The framework focuses on minimising a school's energy, waste, materials, products and water usage and the conservation of biodiversity. EFS requires a holistic approach (Lang, 2007), accordingly, the AuSSI encourages schools to incorporate EFS themes into school operations, curricula teaching and learning, the surrounding landscape, relationships internally and with the broader community (ACT TAMS, 2009; & Davis 2009). Being a sustainable school and engaging with EFS ideas and activities is not just the domain of the AuSSI. The AuSSI provides the scaffolding to assist in planning, monitoring, curriculum development and action. As such there are a range of environmental initiatives which complement the work achieved through the AuSSI as well as health and wellbeing programs such as the school values framework, reflective and strengths based practices, the kids matter program and other health and mental health promotion initiatives, policies of inclusion, reconciliation etc.

There are those activities which contribute to embedding EFS into whole school practice through incorporating content into key school documents such as policy, curriculum and planning documents. This rolls out in day to day activities through a variety of measures

including subject based material such as science, maths, English, art, leadership programs and other less frequent activities such as public speaking opportunities, participating at Conferences or Wakakirri arts festival, or going on excursions to places like National Parks, walking to school initiatives, incorporating recycling, edible gardens, composting, worm farms, animals, greening schools programs, and creating access to outdoor adventure programs etc. EFS is not done by selectively picking one of these examples, nor is it giving one teacher the sole responsibility, or setting up a leadership team without having any democratic participatory means by which to communicate meaningfully. EFS strives for continual improvement, requiring a coherent, strategic whole school approach (Lang, 2007) which embeds these ideas and practices into the day to day running and philosophy of a school.

In 2010, the Australian Government Department of the Environment, Water, Heritage and the Arts (DEWHA) commissioned this evaluation of the operational effectiveness and impact of AuSSI to assess how it is performing in meeting its goals (ARTD Consultants, 2010).

Table Nine: Key Findings from the National AuSSI evaluation

- Approximately one-third of Australian schools have registered during the past eight years, with most registrations occurring in the past three years. In some jurisdictions, the number of registered schools is constrained by the model used to identify AuSSI schools and in others the numbers are enhanced by a more lenient process for registering schools.
- Although several stakeholders felt that implementation of AuSSI was easier in primary schools, the results indicate that the pattern of AuSSI registration for primary and secondary schools is broadly consistent with the numbers of all primary and secondary schools.
- The AuSSI has had a positive impact on the learning experiences of students in some schools. A student-centred approach, especially incorporation of student leadership teams, enhances the involvement of students in learning for sustainability.
- Teachers appear to be applying the principles of action-based learning in their EfS teaching, which has proved much more engaging for students.
AuSSI schools have been engaged in numerous activities to improve their management of resources, most commonly reducing, reusing, and recycling of resources.
- Schools have also been engaged in energy, water and biodiversity conservation activities and improving school grounds.
- These activities have often been supported by resource audits within the school, which enable changes in resource use to be monitored over time. These audits reveal that, in many cases, AuSSI schools are significantly reducing their use of resources.
- Students appear to be driving EfS activities in many schools and are often involved in selecting, planning and delivering sustainability projects in their school and community. Some stakeholders felt that this is empowering students and developing their communication, teamwork and leadership skills. It was also

- Suggested that such activities have a positive impact on student behaviour and on their understanding of sustainability and its relation to social justice. In some schools, parents have been engaged in the EfS activities, although there is little evidence about whether student learnings are transferring to the home environment.
 - There is evidence of schools and AuSSI partners engaging the wider community in their sustainability efforts, including local councils, local community organisations, land owners, Aboriginal groups and environmental experts. These partnerships appear to enhance the schools' efforts towards sustainability and strengthen their involvement in community-wide sustainability issues.
 - AuSSI schools are saving money from reductions in water and energy use and waste to landfill. In all jurisdictions, savings made by schools through reduced resource consumption are available for use within the school. Some stakeholders reported that schools use these funds for sustainability projects.
- The emphasis on a whole school approach is promoted and generally embraced by all jurisdictions and with all school sectors.
- Those fully embracing a whole school approach appear to have more positive EFS outcomes than those that have not yet taken up the approach.

(ARTD Consultants, 2010)

The National AuSSI evaluation reports that most schools are supported by professional development sessions or face-to-face contact with AuSSI facilitators/ officers to develop a School Environmental Management Plan (SEMP). One approach is to focus early in the school's engagement with AuSSI on development of specific action plans to address the issues of most interest to the school, with the SEMP as a less important document. AuSSI facilitators/ officers may also support schools in the early stages of implementation, but support is generally of short duration. In most jurisdictions, there is no follow up of whether a school has implemented its SEMP, partly because there aren't resources to do this and partly because how a school moves forward with their sustainability education initiatives is up to the school. In some jurisdictions, schools are asked to report against their SEMP each year, but whether a school chooses to report is variable nationally (ARTD Consultants, 2010).

A recent EFS study in a Victorian school study reinforces findings in other EFS schools literature in that all sustainability programs involved embodied action based learning experiences. Further, integrative and inquiry based learning in EFS places students at the centre of learning, where they work independently in small groups in local places (Green, Somerville & Potts, 2013). Somerville and Green (2012) reveal the overriding storyline of

EFS as a cross-sectoral system is the lack of funding and resources in all parts of the system. The importance of partnerships, networks and community capacity are highlighted as integral to the success of EFS in schools.

Indeed, strong links with community through partnerships, collaboration and networking have long been signalled in the literature as key success factor in EFS schools (Water Wise Schools - Cutter- Mackenzie 2010, Carbon Kids – Larri 2010, UK EFS Leading Schools - Jackson 2008; Queensland EFS schools - MACER 2006; AuSSI Schools - Larri 2006). This research indicates that EFS programs have the potential to promote and enhance social networks, increase a sense of empowerment and connectedness, and develop the skills of the community within the school context (Block & Johnson, 2009; Cutter-Mackenzie, 2010; Gough, 2004; Henderson & Tilbury, 2004; Jackson, 2008; Larri, 2006; Maller, 2005; Ozer, 2007).

There are a range of environment education programs that strengthen the capacity of AuSSI framework such as the CSIRO's Carbon Kids, school greening grounds and garden programs. Outcomes from the Stephanie Alexander Kitchen Garden (SAKG) mid-way evaluation found that the program was incorporating positive attitudes to environmental sustainability and children were seen to be benefiting from the experience of working in groups, developing confidence and self-esteem and developing strong relationships and enhanced academic outcomes (McCaughey Centre, 2008). The final SAKG report stated the program was considered particularly effective at engaging non-academic learners and children with challenging behaviours (Block & Johnson, 2009).

Appendix B: Measures and Indicators

In 2012, the Australian Government announced a set of National Sustainability Indicators, along with the establishment of the National Sustainability Council. The indicators have been designed to measure and provide impacts of social, environmental, economic dimensions of Australia (National Sustainability Council, 2013), they include:

Social and human capital	Skills and education, health, community engagement, employment, security, institutions, government
Natural capital	Climate, atmosphere, biodiversity and ecosystems, water, waste, natural resources, land
Economic capital	Wealth and income, housing, transport and communications, productivity and innovation, additional economic information
Contextual	Population, cultural diversity, migration, land use

An article on Magee, Scerri and James' (2012) 'Measuring social sustainability' study summarises a selection sustainability well-being measures, before discussing their Community Sustainability Survey, which applied to approximately 3,300 members of various communities in the Middle East, South and Southeast Asia and Australia. This community sustainability measure focused on:

- Economic prosperity;
- Ecological resilience;
- Political engagement; and
- Cultural vitality.

The CSIRO Sustainable Communities Initiative

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) conducted a Wimmera Case Study for Australian primary industries transforming for a changing climate – working towards a blueprint project, in 2011 (Gaillard, 2011). Part of project included a community stakeholder workshop to:

- Identify the major future potential challenges faced by the Wimmera Community;
- Understand what assets the Wimmera community has and how these (and others) need to be fostered to ensure the community can transform if necessary to be sustainable into the future; and

- Identify ways in which the Wimmera community could collaborate with CSIRO in the Transformation project over the next three years.

This case study utilised the following forms of capital as their indicators (Gaillard, 2011):

- Human capital - education level, skills and health status of individuals and populations.
- Natural capital - natural resource base (land, water, trees) that yield products utilised by people for their survival.
- Physical capital - assets brought into existence by economic production, e.g. tools, machines, land improvements like terraces or irrigation canals.
- Social capital - social networks and associations in which people participate, and from which they can derive support.
- Financial capital - stocks of cash that can be accessed in order to purchase production or consumption goods (includes credit).

Health and wellbeing indicators

There are a raft of existing health and wellbeing measures primarily targeting the individual that have already been developed. A selection are identified below.

Pursuing health and well-being measures by assessing a school's social capital, ascertaining community connections, social ties and networks is another method to measuring well-being. Social capital and social networks are seen as a resonant measure of community strength (Johnson, Headey & Jensen, 2003 as cited in Keleher & Armstrong, 2006). Social capital and social connectedness are key determinants of mental and physical health and inequality. (Berkman & Kawachi, 2000 as cited in Keleher & Armstrong, 2006). While measuring social capital is complex, it could be a useful framework to consider. If such approach was fostered it would be beneficial to assess new AuSSI schools as a priority to develop individual benchmarks as the AuSSI has done in other areas of reporting. It may be possible to explore options through case study development, where the researcher could work with schools to analyse existing data. For example, it might be interesting to examine playground incidences (fights, bullying, accidents etc.); levels of absenteeism; staff sick leave rates; suspensions; community events; community networks; fund raising activities etc.; and, the types of well-being programs (eg. Reflective practice, buddying programs) before being an AuSSI school and again a few years into being an AuSSI school.

Preliminary research indicates there are additional indicators which could also be of value to investigate, such as community indicators initiatives in Victoria such as the Community Indicators Victoria and the research through the McCaughey Centre, VicHealth Centre for the Promotion of Mental Health and Community Well Being; The Australia Institute's *Genuine Progress Indicator*, (23 measures of environmental, social and economic wellbeing); and The Australian Unity *Well-being Index* through Deakin University (an adult based survey-based assessment of Australians' subjective wellbeing). These type of indicators are broader by nature – they are not measuring program effectiveness, but may add value as part of current trends.

Measuring the health and well-being impact one program has in isolation to other activities in schools is problematic. It is a complex area and it is difficult to pin point exact factors because there are so many variables for individual students and staff, the impact of their families and built environments and the school community as a whole. The following list provides an example of the plethora of existing indicators on health, well-being, mental health and social and emotional well-being, and purely by the size of the list is a demonstration of how complex this area is and the potential mine field that awaits.

- 1370.0 The Australian Bureau of Statistics (ABS) *Measures of Australia's Progress*;
- 4326.0 ABS *National Survey of Mental Health and Wellbeing 2007* - summary publication. Note references: Andrews & Slade (Interpreting scores on the K10) and the WHO papers;
- 4327.0 ABS *National Survey of Mental Health and Wellbeing 2007* - users' guide. Note 'other scales and measures' this contains information on the K10, delighted-terrible scale and self-assessed health rating. A sample questionnaire is also available to download - see the zip file in the 'downloads' tab.
- 4714.0.55.002 ABS *National Aboriginal and Torres Strait Islander Social Survey* (NATSISS) 2002 - data reference package. Note the Paper version of the CAI questionnaire (note: the questionnaire differed for community/non-community areas, the PAPI questionnaire contains questions relating to personal stressors, social support and self-assessed health; and
- 4363.0.55.001 ABS *National Health Survey 2007-2008* users guide contains some info on personal stressors in the 'Health status indicators' chapter.
- 4363.0.55.002 National Health Survey and National Aboriginal and Torres Strait

Islander Health Survey. (NHS/NATSIHS) 2004-05 - data reference package. Of interest would be the questionnaire which contains social and emotional well-being questions, as well as the Aboriginal and Torres Strait Islander version of the K5 (based on the K10, but with testing to ensure coherence). This module has basically been used in the 2008 NATSISS, for which the results have not yet been released.

- 4363.0.55.001 National Health Survey and National Aboriginal and Torres Strait Islander Health Survey 2004-05 - user's guide. This could assist with some definitions/descriptions through the K10.

- The Australian Unity Wellbeing Index <http://www.australianunity.com.au/about-us/wellbeing/auwbi>

- The Australian Institute of Family Studies. Annual Statistical Report series for *Growing Up in Australia: The Longitudinal Study of Australian Children* (LSAC). <http://www.growingupinaustralia.gov.au/pubs/asr/2012/index.html>

- The United Nations *Human Development Index* - key developmental indicators.

- The World Mental Health Survey Initiative <http://www.hcp.med.harvard.edu/wmh/>

- The World Values Survey <http://www.worldvaluessurvey.org/> The website provides a range of survey questions to ascertain values and cultural changes which are downloadable.

- The Australian Research Alliance for Children and Youth's *The Report Card on the Well-being of Young Australian's – a summary of the well-being of Australia's young people*. It provides a national and international perspective based on eight domains of health and wellbeing, including behaviours and risks and subjective well-being.

http://www.aracy.org.au/index.cfm?pageName=report_card_overview

- The Royal Children's Hospital, Centre for Community Child Health, Melbourne. *Indicators for child health, development and wellbeing: a systematic review of the literature and recommendations for population monitoring* (2002).

http://www.rch.org.au/emplibrary/ccch/Indicators_for_child_health.pdf

- Australian Institute of Health and Welfare. *A picture of Australia's Children 2012*.

- <http://www.aihw.gov.au/publication-detail/?id=10737423343>

AuSSI Program

Indicators were developed on the establishment of the AuSSI program by the Sustainable Schools Initiative Working Group of the National Environmental Education Network.

Representatives comprised of representatives from Australian, State and Territory Government education and environment agencies. The indicators were developed as a means of measuring certain aspects of change through the initiative not as a comprehensive evaluation tool (CoA, 2005). They included:

- Educational – looking at staff and students participation and take up of environmental and sustainability issues
- Environmental – looking at the school's engagement on environmental and sustainability issues through their policies and management plans
- Water – looking at consumption and factors which may have influenced the results
- Electricity – looking at consumption and factors which may have influenced the results
- Waste – looking at landfill reduction levels and factors which may have influenced the results
- School Grounds – looking at changes made to increase Indigenous vegetation, habitats, the impacts of good design and factors which may have influenced the results
- Social – looking at engagement with other schools, local community, signs of any shifts towards more sustainable practices and processes within the school and within their local community
- Economic – Looking at economic savings from reductions in water and energy use and waste to landfill. It also looks at whether the school has attracted sponsorship from other sources and how commercial enterprises (such as the canteen) have engaged with these ideas (CoA, 2005).

Appendix C: Glossary

The Australian Curriculum: The Australian Curriculum, currently under review, built on three key areas identified at the 2008 Melbourne Declaration as benefit for both individuals and for Australia as a whole. They enable the delivery of learning area content at the same time as developing knowledge, understanding and skills relating to Aboriginal and Torres Strait Islander histories and cultures, Asia and Australia's engagement with Asia or Sustainability. These areas are referred to as cross-curriculum priorities (ACARA, 2013).

Built Environment: Part of the overall eco-system of our earth. It encompasses all the buildings, spaces and products that are created, or at least significantly modified by people. It includes our homes, schools and workplaces, parks, business areas and roads (Health Canada 1997 as cited in Butterworth, 2000).

Culture and Cultural heritage: Children's connection to their culture develops as they learn the rules and standards that govern social relationships for their cultural group. Having a strong sense of their own cultural history and traditions helps children build a positive cultural identity for themselves. This also supports children's sense of belonging and self-esteem (Kids Matter, 2009). The UNESCO Universal Declaration on Cultural Diversity (2002) states that:

Culture takes diverse forms across time and space. This diversity is embodied in the uniqueness and plurality of the groups and societies making up humankind. As a source of exchange, innovation and creativity, cultural diversity is a necessary for humankind as biodiversity is for human nature (pg. 13).

Cultural heritage includes traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe of the knowledge and skills to produce traditional crafts (UNESCO, n.d.). Indigenous Cultural Heritage (ICH) transmitted from generation to generation, is maintained and revised by communities providing a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity (UNESCO, n.d.). In 2003 UNESCO adopted the Convention for Safeguarding of Intangible Cultural Heritage. Australia is not a signatory to the 2003 Convention, however the recording, dissemination, digitisation and commercial

use of Intangible Cultural Heritage (ICH) raises issues for Indigenous Australians (Jenke, 2008). ICH as defined by the UNESCO convention, consists of non-physical characteristics, practices, representations, expressions as well as knowledge and skills that identify and define a group. This category includes the following cultural manifestations:

- Oral traditions and expressions, including language
- Music, dance, drama and other performing arts
- Social practices, rituals and festive events
- Knowledge and practices concerning nature and the universe
- Foods and clothing
- And traditional craftsmanship.

International, regional and national policies that empower Indigenous peoples and promote sustainable development are the key to preserving local ecosystems essential to language maintenance. The preservation of local ecosystems is, in turn, critical for the preservation of the global ecosystem, which is the intersection of all local ecosystems (Nettle & Romaine 2000).

Environmental Health: Those aspects of human health, including quality of life, that are determined by physical, biological, social and psycho-social factors in the environment. It also refers to the theory and practice of assessing, correcting, controlling and preventing these factors in the environment that potentially can adversely affect the health of present and future generations (WHO, 1993, as cited in Landon, 2006, p. 5).

Environmental Education for sustainability: Is a concept encompassing a vision of education that seeks to empower people of all ages to assume responsibility for creating a sustainable future (UNESCO, as cited in TAMS, HEAT & DET, 2007). As a result of the global call to pursue sustainable development, it provides a new orientation for current practice in environmental Education (Hunting & Tilbury, 2006).

Gaia: The Gaia hypothesis, closely aligned with deep ecology, argues that the Earth can be regarded as if it were a single living organism (Lovelock, 1988). All parts regulate and balance the planet via feedback mechanisms, thus sustaining life as we know it (Lovelock, 1988).

Health: The World Health Organisation's (WHO) definition of health states that 'Health is a state of complete physical, mental and social wellbeing and not merely the absence of

disease of infirmity' (WHO, 1948). When Aboriginal people speak of health, it is in the context of well-being. Well-being is the integrity and harmony of the inter-relation of all those things that constitute Aboriginal peoples' life ways, central to which is the right to self-determination (NACCHO, 1993). A broad definition of health is outlined as:

Health is holistic, encompassing mental health and physical, cultural, and spiritual health. Land is central to well-being. This holistic concept does not merely refer to the 'whole body' but in fact is steeped in the harmonised interrelations which constitute cultural well-being. These inter-relating factors can be categorised largely as spiritual, environmental, ideological, political, social, economic, mental and physical (Swan & Raphael, 1995).

Health Promotion (Ottawa Charter, 1986): the process of enabling people to increase control over, and to improve their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realise aspirations, to satisfy needs, and to change or cope with the environment. Health, is, therefore seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasising social and personal resources, as well as physical capabilities. Therefore, health promotion is not just the responsibility of the health sector, but goes beyond the healthy lifestyles to well-being (International Conference on Health Promotion, 1986).

Health promoting schools: WHO (2002) defines a health-promoting school as 'one that constantly strengthens its capacity as a healthy setting for living, learning and working' and states that the physical school environment has a strong influence on children's health because:

- The environment is one of the primary determinants of children's health
- Children may be more susceptible to the adverse health effects of chemical, physical and biological hazards than adults.
- Children's behavioural patterns are distinctively different from adults and place them at risk from exposure to environmental threats that adults may not face.

A health psycho-social environment simultaneously provides support to teachers, students and their families (WHO, 2003).

Indicators: Measure or symbol that reflects the status of a system

Inequality: a measurable phenomenon that can be applied to income, wealth, social status, education, health and social outcomes (Douglas et al., 2014).

Melbourne Declaration on Educational Goals for Young Australians (2008): focuses on high quality schooling for all young Australians and identifies the necessity to build confident individuals who have amongst other attributes (MCEETYA, 2008):

- a sense of self-worth, self-awareness and personal identify that enables them to manage their emotional, mental, spiritual and physical well-being
- have a sense of optimism about their lives and the future
- develop personal values and attributes such as honesty, resilience, empathy and respect for others
- have the knowledge, skills, understanding and values to establish and maintain healthy, satisfying lives
- relate well to others and form and maintain healthy relationships
- embrace opportunities, make relational and informed decisions about their own lives and accept responsibility for their own actions.

Mental Health (The Melbourne Charter, 2009): is a state of complete physical, mental, spiritual and social well-being in which each person is able to realise ones abilities, can cope with the normal stresses of life, and makes a unique contribution to one's community (The Melbourne Charter, 2009).

Neoliberalism: proposes that human well-being can best be advanced by the maximisation of entrepreneurial freedoms within an institutional framework characterised by private property rights, individual liberty, free markets and free trade (Harvey, 2006, p. 145).

Self Determination: is central to health and social justice. Self-determination is felt in a variety of ways from day to day interactions to lifestyle choices to community goals and structures (Beilhardz, 2002).

Social Inclusion: is a determinant of mental health and well-being that is integrally linked to the Ottawa Charter for Health Promotion. At one level it represents the degree to which individuals feel connected with their communities; more broadly it is about the strength within communities and organisations that sustains positive mental health. Social inclusion is a broad notion that incorporates the concepts of social capital, social networks, social connectedness, social trust, reciprocity, local

democracy and group solidarity (Jermyn, 2001, as cited in Keleher & Armstrong, 2005).

Social exclusion: Social inclusion can be understood in relation to social exclusion.

The Joseph Rowntree Foundation (2000, as cited in Keleher & Armstrong, 2005)

identified four dimensions of social exclusion:

1. impoverishment or exclusion from adequate income or resources
2. labour market exclusion
3. service exclusion
4. exclusion from social relations.

Solastalgia: a concept developed to give deeper meaning and clarity to environmentally induced distress. Solastalgia is the distress that is produced by environmental change impacting on people while they are directly connected to their home environment (Albrecht et al., 2007).

Stakeholders: Those that have a vital or vested interest in the process, activity and/or outcome.

Systems thinking: Berkowitz et al. (2005) suggest that through systems thinking, an ecologically literate person can:

- define an object of study in the environment as a system with all the key components and their connections specified and bounded in time and space;
- identify the two main types of systems in ecology, those involving individuals, populations, genes and evolution and those involving groups of species, communities, and ecosystems in functional ecological time;
- place whole systems into their hierarchical context
- understand the nature of causal factors, constraints and feedbacks in ecological systems.

Well-Being: Well-Being is happiness plus meaningfulness. The basic psychological needs underpinning well-being include autonomy, competence, personal growth, life purpose, mastery and positive relatedness (Eckersley, 2004, p. 97). Pomagalska et al. (2009) view health and well-being as reflecting physical, psychological, emotional and spiritual health for individuals and as incorporating social and environmental well-being for communities. The Australian Bureau of Statistics states that well-being can be seen as a state of health or sufficiency in all aspects of life (Trewin, 2001). In order to achieve optimal conditions for health

and wellbeing, it is now readily accepted that many other factors can have either a positive or negative influence and include political, economic, environmental, social, spiritual, cultural, psychological, and physical conditions. What is apparent is that social and emotional wellbeing is part of a holistic understanding of life itself (Social Health Reference Group, National Aboriginal and Torres Strait Islander Health Council and National Mental Health Working Group, 2004, p. 7).

Intrapersonal – a students' sense of self and their capacity to function in the school community (Frallion, 2004; Larri, 2009):

- Autonomy – showing independence, actions and or values are fully endorsed
- emotional regulation – the degree to which the students emotional responses are appropriate to the event surrounding them
- Resilience – the capacity to manage, recover and move on from critically challenging events
- Self-efficacy – the degree to which the student believes they are effective – able to organise, implement and adapt strategies to meet desired outcomes
- Self-esteem – the way a student feels about themselves
- Spirituality – a positive sense of meaning and purpose in life
- Curiosity – an intrinsic desire to learn more
- Engagement – engagement with the learning process and the school community
- Mastery orientation – the desire to complete tasks to the best of one's ability

interpersonal – a students' appraisal of their social circumstances and their capacity to function in the school community (Frallion, 2004; Larri, 2006):

- Communicative efficacy – using communicative skills in the context to achieve a purpose
- Empathy – responding to another person with the same emotion and being able to understand another person's perspective
- Acceptance – having respect, tolerance, trust to be able to understand society and the qualities of others
- Connectedness – meaningful linkage with a wide range of people.

Wicked problems: are complex, dynamic and contested. They are not amenable to off the shelf solutions. Their contested nature means that tackling these problems effectively requires participatory approaches that engage the constituents involved in/impacts by the issues (Williams et al., 2009). Wicked problems have been defined by the APSC (2007) as:

- Difficult to clearly define
- Have many interdependencies and are often multi-causal
- Often unstable/dynamic
- Have no clear solution
- Socially complex
- Hardly ever sit conveniently within the responsibility of any one organisation
- Involve changing behaviour
- At times, characterised by chronic policy failure
- Attempts to address the problem often lead to unforeseen consequences.

Appendix D: Aboriginal and Torres Strait Islander Action Plan 2010-2014

The Ministerial Council for Education, Early Childhood Development and Youth Affairs (MCEEDYA) (2011) *Aboriginal and Torres Strait Islander Education Action Plan 2010-2014* acknowledge that schools need to:

embrace diversity and explicitly value Aboriginal and Torres Strait Islander languages and cultures to enable students to feel culturally safe at school. Increased engagement between the school, community and parents is a key factor in supporting regular attendance. A curriculum and pedagogy that embed Aboriginal and Torres Strait Islander cultural perspectives will support attendance and retention (p. 18).

This is supported by the MCEEDYA Adelaide Declaration on National Goals for Schooling in the 21st Century (1999), key to supporting cultural diversity and wellbeing include:

1. Schooling should develop fully the talents and capacities of all students. In particular, when students leave school they should:
 - 1.1 have qualities of self-confidence, optimism, high self-esteem, and a commitment to personal excellence as a basis for their potential life roles as family, community and workforce members.
 - 1.3 have the capacity to exercise judgement and responsibility in matters of morality, ethics and social justice, and the capacity to make sense of their world, to think about how things got to be the way they are, to make rational and informed decisions about their own lives and to accept responsibility for their own actions.
 - 1.7 have an understanding of, and concern for, stewardship of the natural environment, and the knowledge and skills to contribute to ecologically sustainable development.
 - 1.8 have the knowledge, skills and attitudes necessary to establish and maintain a healthy lifestyle, and for the creative and satisfying use of leisure time.
3. Schooling should be socially just, so that:

- 3.1 students' outcomes from schooling are free from the effects of negative forms of discrimination based on sex, language, culture and ethnicity, religion or disability; and of differences arising from students' socio-economic background or geographic location.
- 3.3 Aboriginal and Torres Strait Islander students have equitable access to, and opportunities in, schooling so that their learning outcomes improve and, over time, match those of other students.
- 3.4 all students understand and acknowledge the value of Aboriginal and Torres Strait Islander cultures to Australian society and possess the knowledge, skills and understanding to contribute to and benefit from, reconciliation between Indigenous and non-Indigenous Australians.
- 3.5 all students understand and acknowledge the value of cultural and linguistic diversity, and possess the knowledge, skills and understanding to contribute to, and benefit from, such diversity in the Australian community and internationally.

The importance of inclusion and cultural understanding is also acknowledged in the National Framework for Values Education in Australian Schools (DEST 2005:4) and in particular:

- 1. Care and Compassion - Care for self and others;
- 3. Fair Go - Pursue and protect the common good where all people are treated fairly for a just society;
- 4. Freedom - Enjoy all the rights and privileges of Australian citizenship free from unnecessary interference or control, and stand up for the rights of others;
- 7. Respect - Treat others with consideration and regard, respect another person's point of view;
- 8. Responsibility - Be accountable for one's own actions, resolve differences in constructive, non-violent and peaceful ways, contribute to society and to civic life, take care of the environment; and
- 9. Understanding, Tolerance and Inclusion - Be aware of others and their cultures, accept.

Appendix E: Definitions of Sustainability in each Curriculum Document

Jurisdiction	Definition of Sustainability
National	<p>“Sustainability addresses the ongoing capacity of Earth to maintain all life. Sustainable patterns of living meet the needs of the present without compromising the ability of future generations to meet their needs. Actions to improve sustainability are both individual and collective endeavours shared across local and global communities. They necessitate a renewed and balanced approach to the way humans interact with each other and the environment.”</p> <p>http://www.australiancurriculum.edu.au/CrossCurriculumPriorities/Sustainability</p>
ACT	<p>Sustainability is the quest for a society that can persist over generations without destroying the social and life-supporting systems that current and future generations of humans and all species on Earth depend on.</p> <p>Every Chance to Learn, http://www.australiancurriculum.edu.au/, P. 196</p> <p>Acknowledged as being from: Australian Government Department of the Environment and Heritage, Educating for a sustainable future: a national environmental education statement for Australian schools, Curriculum Corporation, 2005.</p>
NSW	<p>No specific definition-differs in each subject area</p> <p>For example:</p> <ul style="list-style-type: none"> • HSIE K-6 defines ‘sustain’ (not sustainability): Able to be kept going. Possessing the necessary resources to maintain or improve the current state. • Geography 7-10 defines ecological sustainability: The ability to meet the needs of the present generation without compromising the ability of future generations to meet their needs. • Science 7-10 defines sustainability: The patterns of activities that meet the needs of the present generation without prejudicing the ability of future generations to meet their needs. <p>Those based on the new AC:</p> <ul style="list-style-type: none"> • Mathematics K-10: Sustainability is concerned with the ongoing capacity of Earth to maintain all life. Sustainable patterns of living meet the needs of the present without compromising the ability of future generations to meet their needs. • Science K-10: Sustainability is concerned with the ongoing capacity of the Earth to maintain all life. (science glossary) Sustainability: The patterns of activities that meet the needs of the present generation without prejudicing the ability of future generations to meet their needs. • History: Sustainability The ongoing capacity of the Earth to maintain life, including the needs of the present, without compromising the ability of future generations to meet their needs. <p>Subjects developed for the National Curriculum: http://syllabus.bos.nsw.edu.au/</p> <p>Secondary Subjects: http://www.boardofstudies.nsw.edu.au/syllabus_sc/</p> <p>Primary Subjects: http://www.boardofstudies.nsw.edu.au/k-6/</p>

Jurisdiction	Definition of Sustainability
VIC	<p>As a cross curricular priority, the definition of sustainability is: “Sustainability addresses the ongoing capacity of Earth to maintain all life. Sustainable patterns of living meet the needs of the present without compromising the ability of future generations to meet their needs”.</p> <p>(The same as is used in the National Curriculum)</p> <p>http://ausvels.vcaa.vic.edu.au/</p>
SA	None present
QLD	<p>No definition indicated in the curriculum (however see “statement on sustainability”- where it is defined as: meeting the needs of the present without compromising the ability of future generations to meet their own needs, or simply as <i>‘enough for all forever’</i>)</p> <p>(Queensland Government Department of Education, Training and the Arts, 2008)</p> <p>http://education.qld.gov.au/publication/production/reports/pdfs/statement-on-sustainability-all-qld-schools-enough-for-all-forever.pdf</p>

Appendix F: Sustainability in each Jurisdictional Curriculum

The following tables outline how/where sustainability appears in each of the curriculums with examples demonstrating each point.

The overview was developed by using the 'find' function, to count the number of times the word sustainability appeared in each curriculum document. This is throughout the whole document, including introductions, however, for those that have been developed with the national curriculum references to sustainability as a cross curricular priority have been excluded. So for example, in the NSW syllabus, English K-10 for the National Curriculum p. 28 references sustainability as a cross curricular priority and what this means. Examples such as this have been excluded.

The 'number of times environmental only' refers to how many times sustainability is only referenced in terms of the environment. This includes references to resource based sustainability-such as: "They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems" (Australian Curriculum, Year 7 Science Achievement Standard, <http://www.australiancurriculum.edu.au/science/curriculum/f-10?layout=1>).

The 'number of times other & environmental' refers to where sustainability is referenced in environmental terms as well as other aspects of sustainability. When this occurs, it is usually environmental and social that are referenced together. For example, in the NSW English K-10 curriculum, it is identified that: "In each year students must study examples of: texts that include aspects of environmental and social sustainability" (content and texts required for early stage 1 to stage 3, p. 24; content and texts required for stage 4, p. 25; content and texts required for stage 5, p. 26; content required for years 7-10 life skills, p. 159, <http://syllabus.bos.nsw.edu.au/download/>). This category also includes those which are predominantly environmental only, but could be seen to include other areas. Two examples of this are where environmental sustainability is the focus, but using Indigenous knowledge's to maintain environmental sustainability; and where

environmental sustainability is in the interests of maintaining life on earth, however, the focus is mainly environmental factors (see for example SA Curriculum Science for examples of both, http://www.sacsa.sa.edu.au/index_fssrc.asp?t=LA).

The ‘number of times other only’ refers to where sustainability is either referenced in a non-specific way, with no indicator of a specific area of sustainability, such as: “Respond to and compose texts- formulate, develop and express their own ideas and beliefs creatively, thoughtfully, positively and confidently on issues such as sustainable patterns of living” (NSW K-10 English Stage Five: Objective C Outcome 5, <http://syllabus.bos.nsw.edu.au/download/>, p. 143) Or, when it is referenced in relation to areas other than environmental, such as social, cultural or economic sustainability. An example of this is: “Students are introduced to the concept of resources and their management, and begin to understand how resource use reflects community interdependence and economic sustainability. They begin to understand how local resources are used to make products which meet local people's needs and the needs of people in other places. They also begin to understand that resources from other places may be used to make products locally to meet their needs” (The Humanities Level 1 Learning focus AusVELS (Victoria) Curriculum, <http://ausvels.vcaa.vic.edu.au/English/Overview/English-across-Foundation-to-Level-10>).

Additionally, as this is based on counting the number of times the word ‘sustainability’ is used, there are times when it is used in close relationship to each other-ie in the National Curriculum for Geography, in one Year 4 level descriptor, it appears as follows: “*The Earth’s environment sustains all life* focuses on developing students’ understanding of sustainability which is about the ongoing capacity of the environment to sustain human life and wellbeing. Students recognise that people have different views on how sustainability can be achieved. They learn that sustainability means more than the careful use of resources and the safe management of waste, and they develop their understanding of the concept by exploring some of the other functions of the environment that support their lives and the lives of other living things” <http://www.australiancurriculum.edu.au/humanities-and-social-sciences/geography/curriculum/f-10?layout=1> . This has been noted in the tables.

The National Curriculum:

- Mostly environmental references and mostly appears in humanities (geography).
- In science it is resource based in the context of environmental.
- History-environmental
- Technology TBL, more resource sustainability, with some then in relation to the environment.
- In Civics and citizenship, it is social

The National Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary School)	Example (High School)
Mathematics	0	0	0	0	N/A	N/A
Science	1	1	0	0	N/A	Year Seven Achievement Standard: They <u>analyse</u> how the sustainable use of resources depends on the way they are formed and cycle through Earth systems.
History	4	2 plus 2 together- (see example)	0	0	None	The Asia Pacific World: The Polynesian expansion across the Pacific (c. 700 – 1756) The way Polynesian societies used environmental resources (sustainably and unsustainably), including the extinction of the moa in New Zealand, the use of religious/supernatural threats to conserve resources, and the exploitation of Easter Island's palm trees (ACDSEH068)

The National Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary School)	Example (High School)
Geography	15	6	3 individually 6x more together in one paragraph overview-TBL focused, however, in context of environment. (see Year 4 example)	0	<p>Year 4 Level Description: <i>The Earth's <u>environment</u> sustains all life</i> focuses on developing students' understanding of <u>sustainability</u> which is about the ongoing capacity of the <u>environment</u> to sustain human life and wellbeing. Students recognise that people have different views on how <u>sustainability</u> can be achieved. They learn that <u>sustainability</u> means more than the careful use of resources and the safe management of waste, and they develop their understanding of the concept by exploring some of the other functions of the <u>environment</u> that support their lives and the lives of other living things.</p>	<p>Year 9 content Descriptor: Unit 1: Biomes and food security The capacity of the world's environments to sustainably feed the projected future population to achieve food security for Australia and the world (<u>ACHGK064</u>)</p> <p>Year 10 Level Description: <i>Environmental <u>change</u> and <u>management</u></i> focuses on investigating environmental geography through an in-depth study of a specific <u>environment</u>. The unit begins with an overview of the <u>environmental functions</u> that support all life, the major challenges to their <u>sustainability</u>, and the environmental worldviews - including those of Aboriginal and Torres Strait Islander Peoples - that influence how people perceive and respond to these challenges.</p>

The National Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary School)	Example (High School)
Economics and Business	0	0	0	0	N/A	N/A
English	0	0	0	0	N/A	N/A
Civics and Citizenship	2	0	0	2	None	Year 10 Content Descriptions- government and Democracy: The challenges to and ways of sustaining a resilient <u>democracy</u> and cohesive society(ACHCK094)
The Arts	0	0	0	0	N/A	N/A
Technologies (including D&T and Digital Technologies)	21	5	8	21	Year 3 & 4 Technology: Recognise the role of people in design and <u>technologies</u> occupations and explore factors, including sustainability that impact on the design of products, services and environments to meet community needs (ACTDEK010)	Year 9 & 10 Technology: Critically analyse factors, including social, ethical and sustainability considerations, that impact on <u>designed solutions</u> for global <u>preferred futures</u> and the complex design and <u>production processes</u> involved (ACTDEK040)
H & PE	0	0	0	0	N/A	N/A

The NSW Curriculum:

Subjects sustainability is taught in are Humanities, and small references in science and the arts.

- Science (k-10 AC) resource based view-ie energy consumption etc, weather, environment) (BUT not mentioned in K-6 NSW science-just the new National curriculum k-10)
- History (k-10 AC) but, mostly a global view, and mainly environmental.
- HSIE K-6 (a lot of references-mostly found here) the focus is on environmental/ecological sustainability-sustainability is not mentioned without reference to the environment.
- Geography (7-10) Mostly environmental, and resource management /use. Small references to population/social sustainability.

The NSW Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
P-10 National						
Mathematics	1	1	0	0	N/A	Stage five statistics and Probability: analyse a variety of data displays used in the print or digital media and in other school subject areas, eg share-movement graphs, data displays showing sustainable food production (Problem Solving)

The NSW Curriculum

Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
Science	27	15	3	9 (mostly non-specific)	Stage One: Earth and Space: identify some actions which could be taken to care for and use water sustainably, eg turning off dripping taps and/or taking shorter showers	Stage Four: Living World: describe how scientific knowledge has influenced the development of practices in agriculture, eg animal husbandry or crop cultivation to improve yields and sustainability, or the effect of plant-cloning techniques in horticulture
English	8	2	5 (social and environmental)	1 (non-specific)	In each Year students must study examples of: texts that include aspects of environmental and social sustainability	Stage Four: Objective C Outcome 5: Content Respond to and compose texts -express considered points of view and arguments on areas such as sustainability and the environment accurately and coherently in speech or writing with confidence and fluency Stage Five: Objective C Outcome 5: Respond to and compose texts - formulate, develop and express their own ideas and beliefs creatively, thoughtfully, positively and confidently on issues such as sustainable patterns of living

The NSW Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
History	6	4 plus 2 together (see example)	0	0	N/A	Stage Four: Depth Study 5-the Asia Pacific World: The way Polynesian societies used environmental resources (sustainably and unsustainably), including the extinction of the moa in New Zealand, the use of religious/supernatural threats to conserve resources, and the exploitation of Easter Island's palm trees (ACDSEH068)
Primary School K-6						
Science and Technology k-6	0	0	0	0	N/A	N/A
Mathematics K-6	0	0	0	0	N/A	N/A
HSIE K-6	15	14	1	0	Content Overview — Subject Matter: Stage Three: students will learn about: ecologically sustainable development of environments	N/A
PDHPE K-6	0	0	0	0	N/A	N/A
Creative Arts K-6	0	0	0	0	N/A	N/A
Languages K-10	Did not analyse					

The NSW Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
High School 7-10						
Dance	0	0	0	0	N/A	N/A
Drama	1	0	0	1		Values and Attitudes the contribution of drama and theatre to enriching and sustaining cultures and societies.
Music	0	0	0	0	N/A	N/A
Visual Art	0	0	0	0	N/A	N/A
Photographic and Digital Media	1	1	0	0	N/A	Values and Attitudes: ethical and environmentally sustainable photographic and digital media practices.
Visual Design	2	1	0	1	N/A	Values and Attitudes: ethical and environmentally sustainable visual design practices.

The NSW Curriculum

Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
Aboriginal Studies	3	3	0	0	N/A	Students learn to: analyse the contribution of Aboriginal technologies to tourism, trade and the Australian economy through avenues such as ecotourism and environmentally sustainable industry; use electronic communication including the internet to find information
Commerce	1	0	1	0	N/A	Cross Curricular Content: Environment Students investigate the impact on the environment and different communities of business and commercial activities and decisions. Students develop an understanding of ecological, personal and social goals and investigate strategies to protect the environment and move towards a more sustainable society.

The NSW Curriculum

Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
Geography	30	26	1	3	N/A	Stage Four: They are able to discuss the implications, evaluate the sustainability and suggest alternative strategies for the future use and management of global environments.
Science	3	2	0	1		Stage Five Outcome 5.11 Essential Content: discuss strategies used to balance human activities and needs in ecosystems with conserving, protecting and maintaining the quality and sustainability of the environment.
Mathematics	0	0	0	0	N/A	N/A
English	0	0	0	0	N/A	N/A
History	0	0	0	0	N/A	N/A
Work Education	10	2	0	8	N/A	Students learn to: demonstrate an understanding of the importance of reporting mechanisms in relation to accountability and sustainability
PDHPE	0	0	0	0	N/A	N/A
Technology (7-8)	0	0	0	0	N/A	N/A
Languages	Did not analyse					
Elective technology units	Did not analyse					

The ACT Curriculum

Subject	Number of times in context of environmental	Number of times in context of other (elaborate)	Example (Primary)	Example (High)
ELA 20 (Identified to be in the subject area of science)	A Whole ELA is dedicated to environmental sustainability: ELA 20: "The student acts for an environmentally sustainable future"	TBL factors are considered in the context of learning about "The student Understands World Issues and Events" "the student designs makes and appraises using technology" "The student understands and applies the inquiry process", "The student understands and applies scientific knowledge" "The student understands about Australia and Australians" and "The student understands world issues and events." but are not explicitly stated-it is just noted these link to the ELA "Student acts for an environmentally sustainable future" and the focus is more on TBL than just environmental with these links	<ul style="list-style-type: none"> • 20.LC.3 some effects of human action on natural environments (e.g. land clearing, air and water pollution) 	<ul style="list-style-type: none"> • 20. EA.5 how countries work together to protect the environment.

The Queensland Curriculum:

- Mostly environmental & resource focused, however, there are small references to a TBL approach.

The Queensland Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
Early Years Curriculum (Prep)			There is a whole learning statement area on sustaining environments- see example.		Children think and enquire by: <ul style="list-style-type: none"> • investigating features of, and ways to sustain, environments. 	N/A
Years 1-9						
Studies of Society and the Environment	9	3	3	3	End of Year five: Ways of Working: reflect on and identify personal actions and those of others to clarify values associated with social justice, the democratic process, sustainability and peace	Place and Space by end of year nine: Governments and communities need to balance economic, social, political and environmental factors through sustainable development, consumption and production <i>e.g. resource use and environmental impacts; logging and the survival of small communities dependent on that industry.</i>

The Queensland Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
The Arts	0	0	0	0	N/A	N/A
HPE	0	0	0	0	N/A	N/A
Languages	0	0	0	0	N/A	N/A
Technology	1	0	0	1 (TBL)	N/A	EL by the end of year seven: Technology as a human endeavour: Product design and production decisions are influenced by specifications, constraints and aspects of appropriateness including functions, aesthetics, ethics, culture, available finances and resources, and sustainability <i>e.g. menu design is influenced by type of cuisine, cultural theme and cost.</i>
Years 8-10						
Home Economics	1	1	0	0	N/A	Home Economics LSSG & K&U examples: Sustainable energy solutions, inductive cooking

The Queensland Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
D & T (yrs. 8-10)	7	3	2 (TBL focused)	2	N/A	<p>Year 8 & 9 Processes and Techniques: Investigate design situation requirements, considering concepts such as ergonomics, safety, sustainability and production.</p> <p>Rationale: Investigate design situation requirements, considering concepts such as ergonomics, safety, sustainability and production.</p>
Business	3	0	1 (see example)	2 (-financial, ethics, people etc.)	N/A	<p>Year Ten Business: Consumers and government expect businesses to act responsibly by making informed decisions and using business practices that are socially, ethically, economically and environmentally responsible and sustainable</p>

The Queensland Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
I & CT	1	0	1 (TBL)	0	N/A	Assessment Investigative analysis involves research assignments, reports or system evaluations that: <ul style="list-style-type: none"> analyse sustainable practice, ethical principles and their impacts on society, culture, the economy, and the environment
P-10						
ATSI Languages	0	0	0	0	N/A	N/A
Australian Curriculum Subjects						
History	4	4 (two together)	0	0	N/A	Year 8 History: The way Polynesian societies used environmental resources (sustainably and unsustainably), including the extinction of the moa in New Zealand, the use of religious/supernatural threats to conserve resources, and the exploitation of Easter Island's palm trees (ACDSEH068)

The Queensland Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
English	0	0	0	0	N/A	N/A
Mathematics	0	0	0	0	N/A	N/A
Science	1	1	0	0	N/A	Year Seven: 2.2 Achievement Standards They analyse how the sustainable use of resources depends on the way they are formed and cycle through Earth systems.

The South Australian Curriculum

- Mostly mentioned in science and society & environment. These were mainly environmental focused.
- In science, it is mainly environmental issues, however linked with sustainability of 'life on earth' which could suggest other areas of sustainability
- Also mentioned in Design and technology, however, this focus was either non-specific, related to resources, or social, economic and other.
- HPE-small mentions

The South Australian Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
English	0	0	0	0	N/A	N/A
HPE	5	3	2	0	Strand: Health of individuals and communities: recognising how local communities contribute to the health of their members, and how natural and social environments influence health. Students gather information on local community health concerns and consider sustainable practices for the health of future populations. They become aware of the world of work and options available to them in the health, recreation and sport industries	Strand: Health of individuals and communities: explains the value of natural environments to self and communities by regularly visiting them, and considers how they can contribute to the sustainability of these environments
The Arts	0	0	0	0	N/A	N/A

The South Australian Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
D & T	57	8	16 (it is usually social and environmental that are linked)	33 (lots of general, non-specific examples)	Strand Making: end of year six selects appropriate equipment and materials needed to make and tune a wind chime which is durable, produces a pleasant sound, is environmentally sustainable, and can be easily maintained.	Strand Designing: evaluates and revises a selection of their designs in the light of opinions they have gained from others, including ideas about social and environmental sustainability
Languages	Did not analyse					
Mathematics	0	0	0	0	N/A	N/A
Science	72	30	32 (Note that most of these are examples where environmental issues have been referenced in order “to maintain life on earth” and as such have been placed in this category-but are predominantly environmental concerns-(see example)		R-2: Strand Earth and Space: 2.1 Expresses ideas about changes that occur in their local environment, and considers implications for sustainable environments.	Senior Years: Strand Earth and Space 5.1 Researches and analyses contemporary theories about geological features, such as plate tectonics, and investigates their effects on sustaining life on earth.

The South Australian Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
Society and the Environment	79	56 Of these it is referenced twice in one explanation four times. (see second eg.)	17 (mostly social and environmental)	6	<ul style="list-style-type: none"> considering social justice, ecological sustainability and democratic process when evaluating historical material and predicting futures 	<p>Middle years: strand time continuity and change: appraises how further change could take into account sustainability and fairness for all.</p> <p>Ecological sustainability such as: environmental stewardship and conservation; a commitment to maintaining biological diversity; and a recognition of the intrinsic value of the natural environment. These values contribute to learners' understanding of how ecological sustainability can be achieved, in ways that redress environmental damage caused by past and present generations and safeguard the inheritance of future generations.</p>

The Victorian Curriculum:

- Civics and Citizenship- environmental & some TBL. With TBL, most emphasis given to environmental, but the impact of environmental on social, economic and in some places, cultural.
- Economics, obviously a focus on economic sustainability, however, this is often closely associated with issues of environmental, and some social/cultural issues.
- Geography, environmental and resource use, also social and cultural, but not as much as environmental & resource.
- History, world sustainability issues-environmental focused (small mentions).
- Science environmental, resource use-ie water, energy etc.

The Victorian Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
Personal and Social Learning						
Civics and Citizenship	14	8	5	1	Level 5 learning focus: Students understand the ways in which Australian citizens are influenced by and can influence local, state, national, regional and global decisions and movements, including issues of sustainability.	Level 9 learning focus: Students evaluate the role of the Australian Government in the global community including Australia's role in the United Nations, through contexts such as government responses to environmental concerns such as global warming or other issues of environmental sustainability, natural disasters, peacekeeping operations, world poverty and national and global security issues. Level ten standards: They explain the development of a multicultural society and the values necessary to sustain it.

The Victorian Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
HPE	0	0	0	0	N/A	N/A
Interpersonal Development	0	0	0	0	N/A	N/A
Personal Learning	0	0	0	0	N/A	N/A
Discipline Based						
The humanities (1-4)	2	0	0	2	Level one and two Learning Focus: Students are introduced to the concept of resources and their management, and begin to understand how resource use reflects community interdependence and economic sustainability. They begin to understand how local resources are used to make products which meet local people's needs and the needs of people in other places. They also begin to understand that resources from other places may be used to make products locally to meet their needs.	N/A
The Arts	0	0	0	0	N/A	N/A
English	0	0	0	0	N/A	N/A

The Victorian Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
Geography	11	7	0	4 (non-specific see eg)	Level 6 learning Focus: At Level 6, students identify and describe Australia's significant natural processes. They describe the reaction of people to these processes including the management of natural disasters. They compare the various ways humans have used and affected the Australian environment. Students recommend ways of protecting environmentally sensitive areas in a sustainable way.	Level 9 & 10 learning focus: Students investigate and learn to evaluate the impact and/or effectiveness of development-related projects, policies and strategies (such as large-scale water projects, tourism, the use of foreign aid, social reform and population control) on physical and human landscapes, locally, nationally and globally. They apply their knowledge and understanding to provide explanations and justify recommendations about local, national and global situations related to development, and their impact on living standards. They reflect on plans of action and past actions, considering the value positions underlying them, including a commitment to the principles of sustainability.
History	4	2 Plus 2 together	0	0	N/A	Level 10 Content Descriptions: developments in technology, public health, longevity and standard of living during the twentieth century, and concern for the environment and sustainability
Languages	0	0	0	0	N/A	N/A

The Victorian Curriculum						
Subject	Number of times sustainability is referenced	Number of times environmental only	Number of times other & environmental	Number of times other only	Example (Primary)	Example (High)
Mathematics	0	0	0	0	N/A	N/A
Science	0	0	0	0	N/A	N/A
Economics	3	0	3 (TBL)		N/A	<p>Level 9 & 10: Students investigate the relationship between economic growth, ecological sustainability and the standard of living, and explore what it means to be an ethical producer and consumer. They begin to reflect on the role of values in the economic decision making of producers, consumers and governments.</p> <p>Level 10: At Level 10, students describe how markets, government policies, enterprise and innovation affect the economy, society and environment in terms of employment, economic growth, the use of resources, exports and imports, and ecological sustainability.</p>
Interdisciplinary Learning						
Thinking Processes	0	0	0	0	N/A	N/A
Communication	0	0	0	0	N/A	N/A
Design Creativity and technology	0	0	0	0	N/A	N/A
I C & T	0	0	0	0	N/A	N/A

Additionally, as can be seen from the tables, the subjects that sustainability appears are overwhelmingly in the humanities, in particular geography, or HSIE (or variations on that subject name). It also appears in the sciences, with this usually being in relation to using/managing earth's resources, as well as environmental aspects of the earth. This further suggests it is an environmentally focused issue.

Appendix G: Sustainability in Policy

List of Policies/Plans relating to Sustainability by State/Territory		
State/Territory	Policy	Comment
ACT	Educating for a Sustainable Future: A National Environmental Education Statement for Australian Schools	<ul style="list-style-type: none"> This statement provides a nationally agreed description of the nature and purpose of environmental education for sustainability through all years of schooling, including a vision and a framework for its implementation. A focus on environmental sustainability to enable achievement of sustainability in other areas. Link: http://www.environment.gov.au/system/files/resources/1b93d012-6dfb-4ceb-a37f-209a27dca0e0/files/sustainable-future.pdf
	People, Place, Prosperity: The ACT's sustainability policy 2009	<ul style="list-style-type: none"> A policy that identifies the Government's commitment to sustainability in the ACT, goals and ways it will occur. Has a TBL approach throughout. Link: http://www.cmd.act.gov.au/_data/assets/pdf_file/0003/119730/people_place_prosperity.pdf
	The Canberra Plan: Towards our Second Century	<ul style="list-style-type: none"> Sets out the goals and visions for Canberra. Includes sections on sustainability-Considers all areas of sustainability, however, there is an emphasis on environmental. Link: http://www.cmd.act.gov.au/_data/assets/pdf_file/0013/120217/canberra_plan_text_V5.pdf
NSW	Learning for Sustainability: NSW Environmental Education Plan 2007-2010	<ul style="list-style-type: none"> This plan aims to develop capacity for people to be informed and active participants in achieving sustainability. It is aimed not just at education in schools, but at a broader level, for anyone/organisation/group, whose work relates in some way to sustainability-including policy level, businesses, schools, etc. Environmental sustainability is the underpinning purpose to the plan. Where other areas of sustainability are considered, they are always linked to environmental sustainability, and usually, environmental sustainability is the way to achieve sustainability in other areas. Link: https://www.centennialparklands.com.au/_data/assets/pdf_file/0013/32215/NSW_Government_-_Learning_for_Sustainability.pdf

List of Policies/Plans relating to Sustainability by State/Territory		
	Environmental Education Policy (for Government Schools)	<ul style="list-style-type: none"> This Policy aims to encourage students' understanding of the environment as an integrated system, and develop attitudes and skills to achieve ecologically sustainable development (see pg. 9). It is based on Agenda 21 from the UN's Earth Summit in 1992. It focuses on change in curriculum, management of resources, and management of school grounds. Schools need to make an environmental management plan to focus on these areas and incorporate the principles of ecologically sustainable development. Focused on environmental sustainability, and resource management/use. Link: http://www.namoi.cma.nsw.gov.au/environmental_education_policy.pdf
	Implementing the Environmental Education Policy in your School	<ul style="list-style-type: none"> This support document has been developed to assist teachers to implement the mandatory <i>Environmental Education Policy for Schools</i>. It provides guidelines and examples of how schools can implement the policy and develop ecologically sustainable initiatives. It provides examples of how the plan can be integrated with the curriculum. Identifying links to HSIE, Science and D&T units specifically, however, it also gives examples of how it can be integrated across other curriculum areas. Uses the Principles of Education about, for and in the environment, with more emphasis on education for the environment. (For definitions etc.-based on the above document Environmental Education Policy) Primarily environmental, but some small recognition of TBL. Link: http://www.curriculumsupport.education.nsw.gov.au/env_ed/assets/pdf/eeimplementdoc.pdf
	NSW Government Sustainability Policy	<ul style="list-style-type: none"> Identifies strategies the Government will implement for sustainability in water and energy use, reducing emissions, waste and fleet management, and purchasing to lead by example in these areas. Environmental and resource use based focus Link: http://www.environment.nsw.gov.au/resources/government/NSWGovSustainabilityPolicy.pdf
VIC	Looking Ahead DEECD's Environmental Sustainability Strategy	<ul style="list-style-type: none"> A policy for all the Department of Education and Early Childhood Development in Victoria, not just schools. In recognition of the need to act for a more sustainable future, particularly as the department has an influential role in the community. It outlines initiatives both as a Departmental

List of Policies/Plans relating to Sustainability by State/Territory		
		<p>level, and school level, particularly the ASSI at a school level. It has a particular focus on environmental and resource management.</p> <ul style="list-style-type: none"> • Focuses on environmental sustainability. While it recognises other aspects in the definition, and that environmental influences other aspects, the focus is mainly environmental. • Link: https://www.eduweb.vic.gov.au/edulibrary/public/schadmin/environment/lookahead.pdf
SA	South Australia Strategic Plan	<ul style="list-style-type: none"> • The strategic plan for South Australia provides a vision and direction for the future of the state. Within it, there is acknowledgement of sustainability in all areas, particularly social, however there is a larger focus on environmental sustainability, with a section on 'our environment' that focuses on sustainability. • Big focus on environmental however other areas as well. • Link: http://saplan.org.au/media/BAhbBlSHOGZmSSlhMjAxMS8xMS8wNC8wMV8wMl8xNF8yMjNfZmlsZQY6BkVU/01_02_14_223_file
QLD	Statement on Sustainability for all Queensland Schools "Enough for all Forever"	<ul style="list-style-type: none"> • A one page statement on what sustainability is, and what their approach to sustainability is, including what it values. It is based on that agreed for the United Nations Decade of Education for Sustainable Development. • TBL approach. • Link: http://education.qld.gov.au/publication/production/reports/pdfs/statement-on-sustainability-all-qld-schools-enough-for-all-forever.pdf
	Earth smart Environmental Sustainability Strategic Plan 2008-2012	<ul style="list-style-type: none"> • QLD Department of Education, Training and the Arts Strategic Plan in relation to environmental Sustainability outlines goals to reduce our ecological footprint (resource based), educate for sustainability, and care for the natural environment. • Focused on environmental aspects. • Education-mostly through ASSI. • Link: http://deta.qld.gov.au/publications/strategic/pdf/earthsmart.pdf

Note: The ACARA definition in the National Curriculum cited on pages 90 & 122 is the proxy for a national definition.